

The Mining Journal

LONDON, JANUARY 17, 1958

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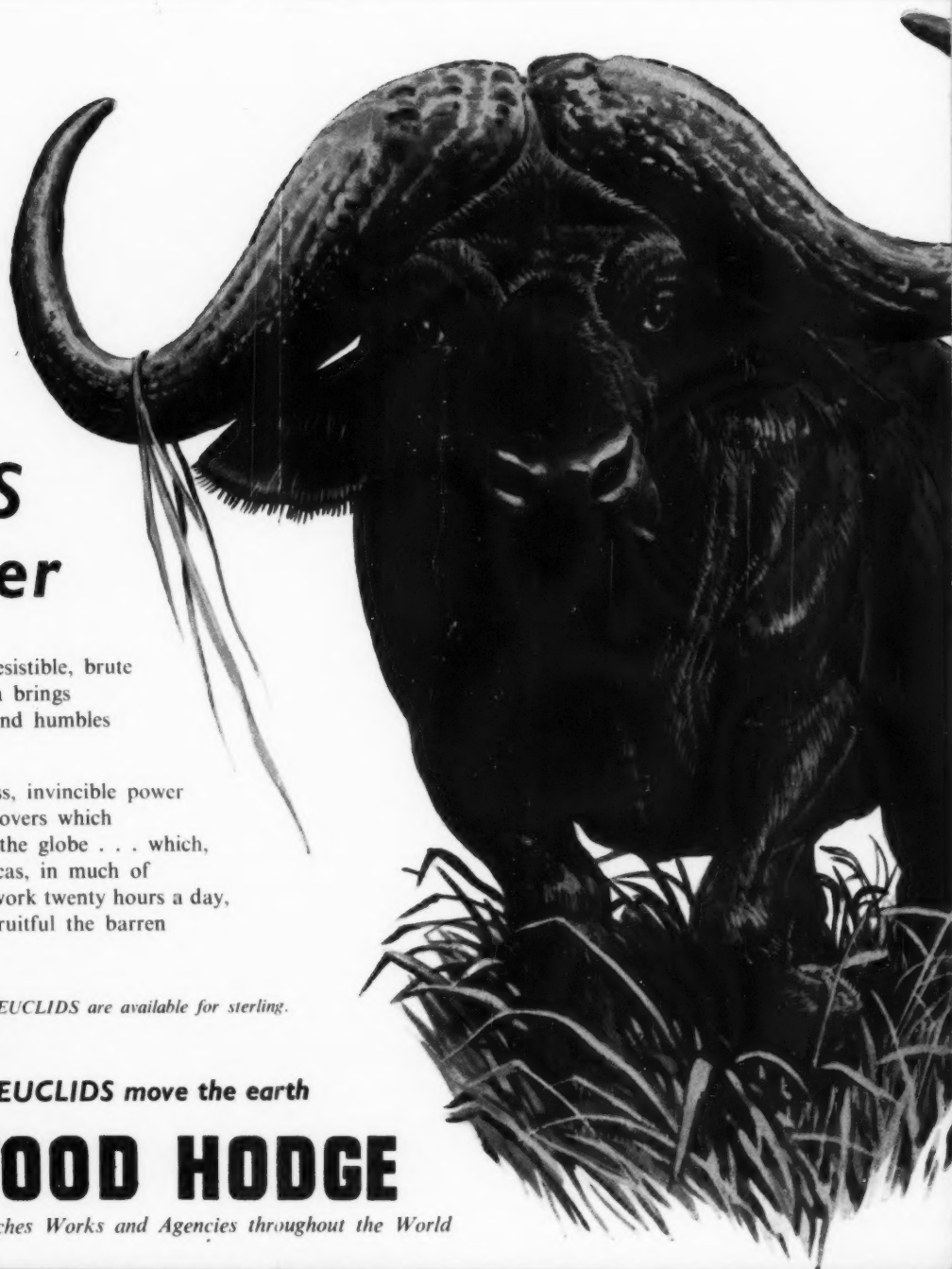


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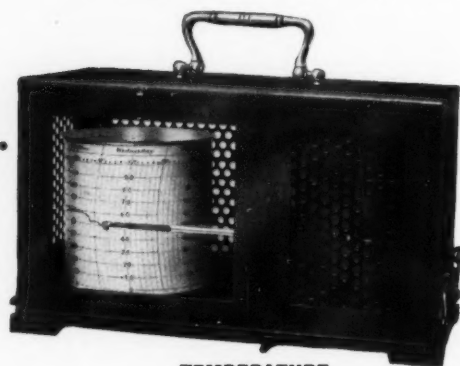
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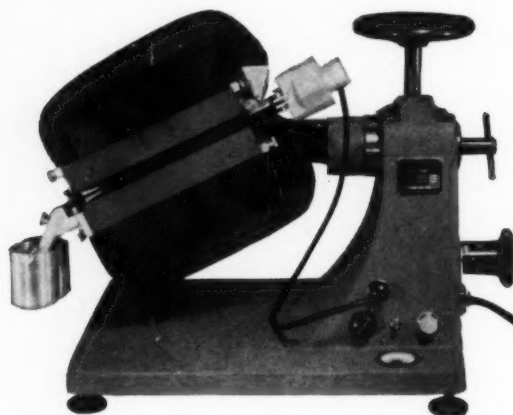
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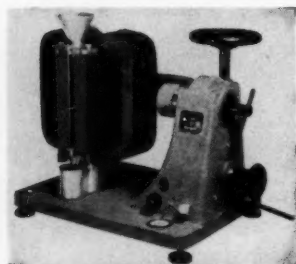


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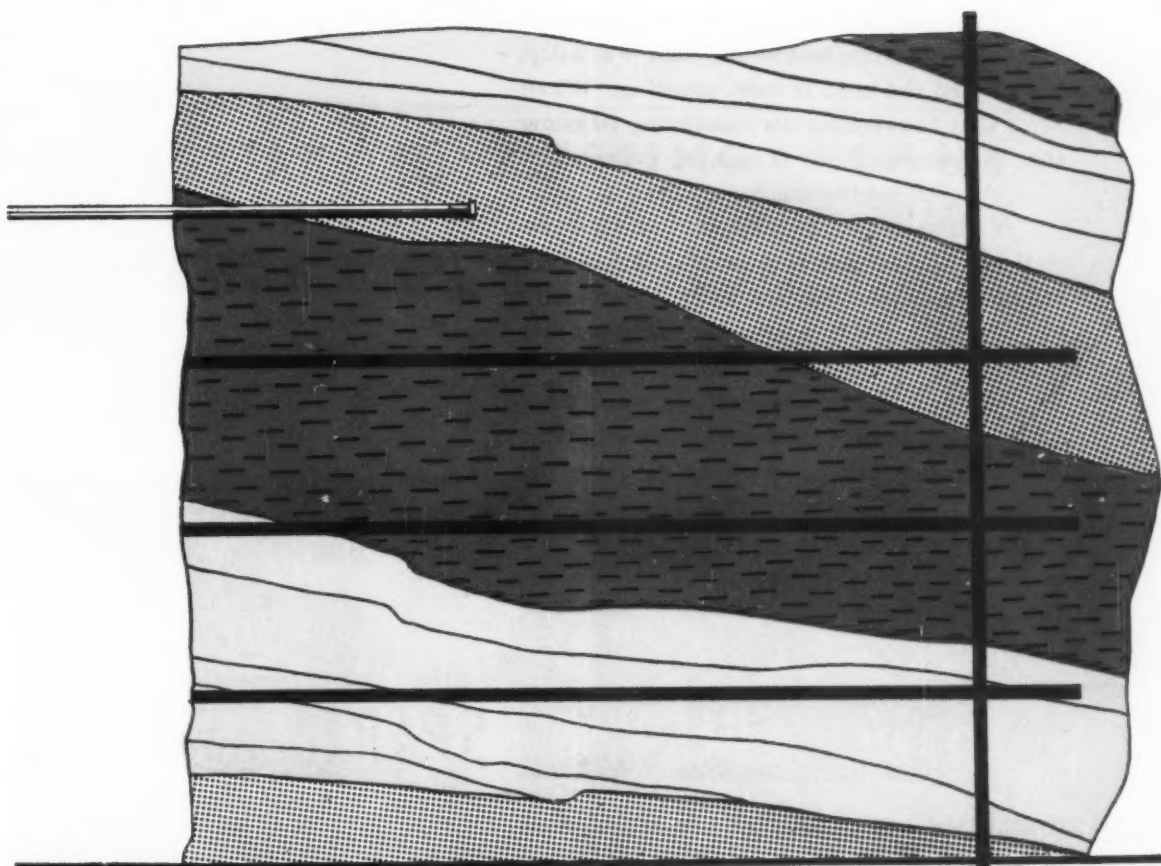
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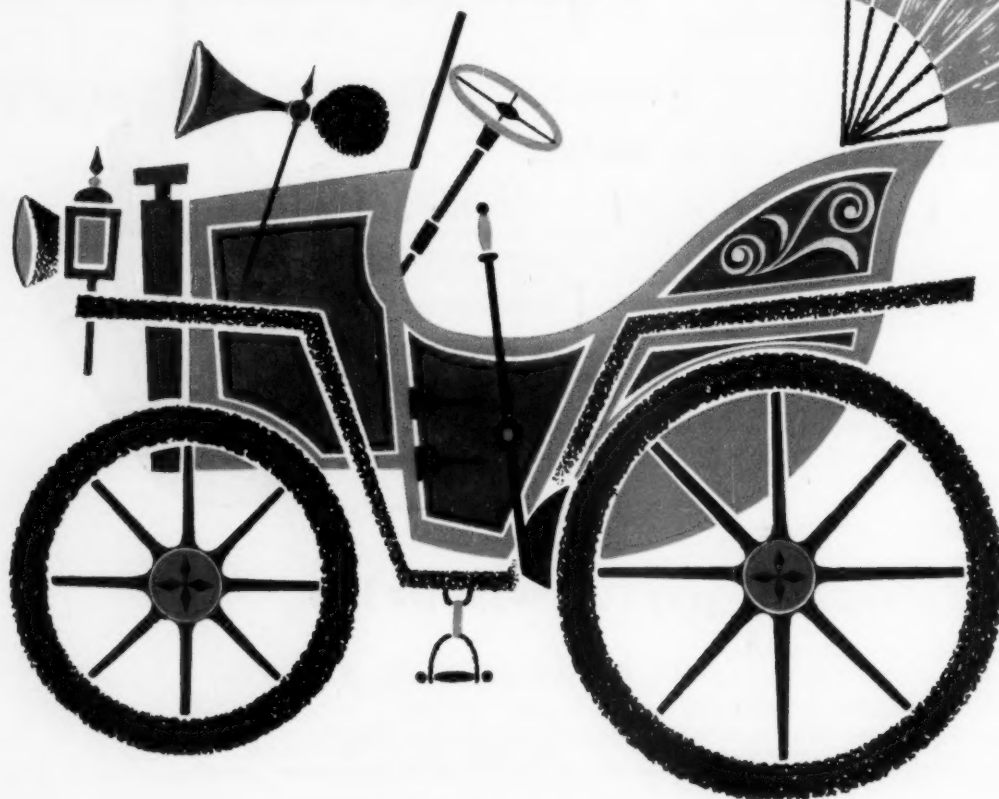
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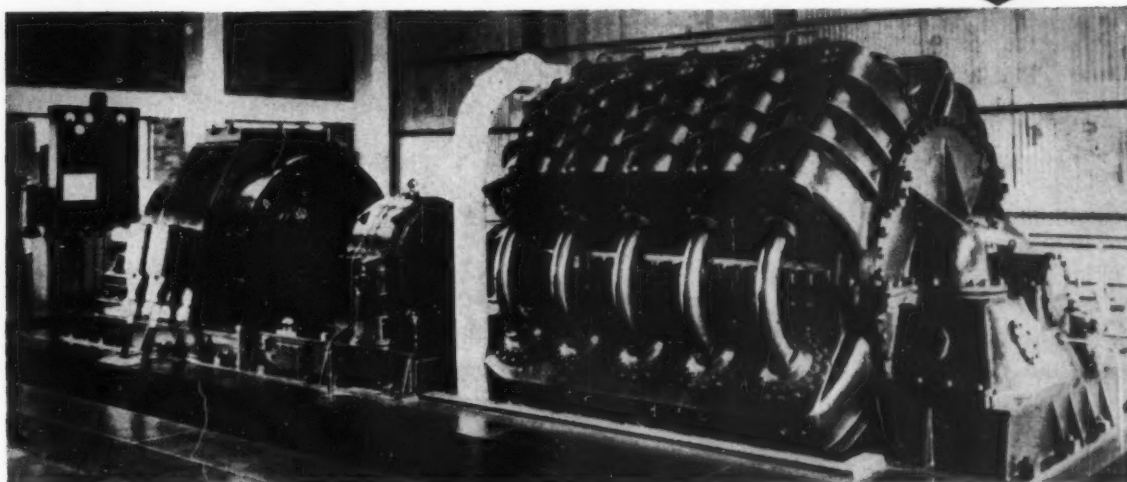


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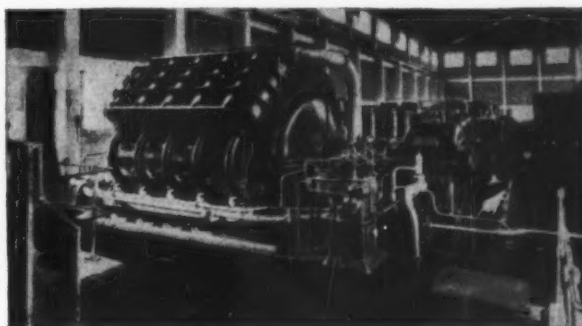


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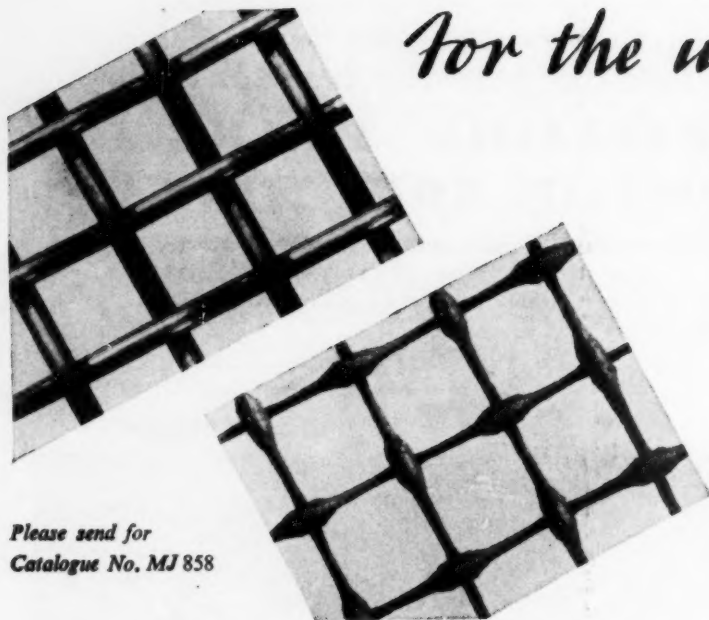
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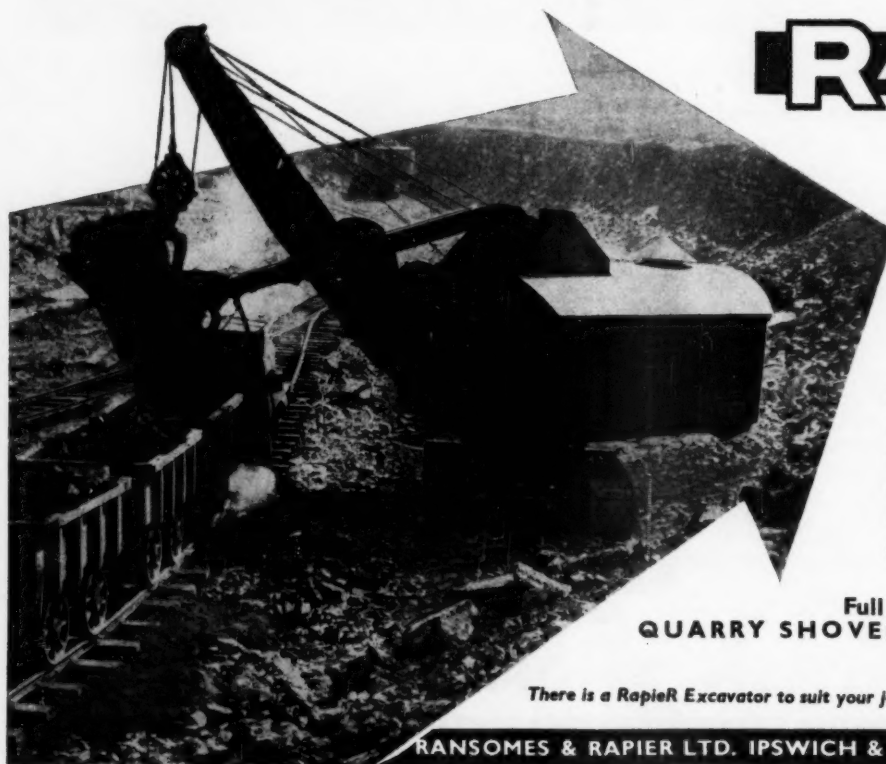
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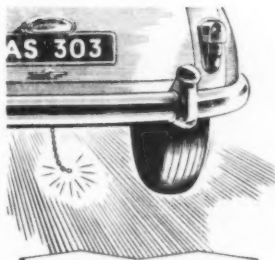
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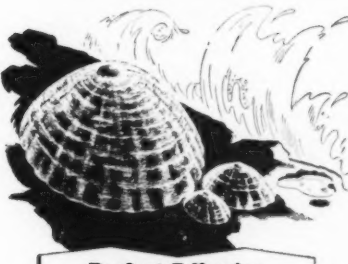
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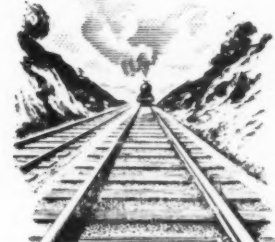
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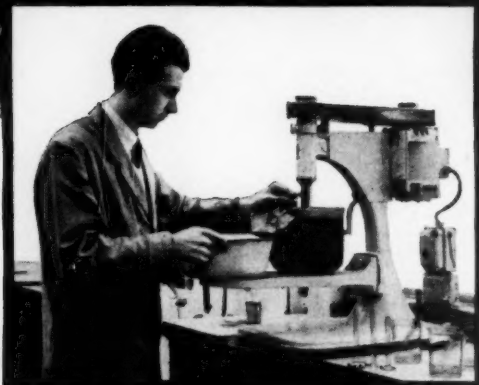
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The Mining Journal

London, January 17, 1958

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Copper Can Now Compete

At a time when copper prices have recently fallen to the lowest level since free dealings were resumed on the London Metal Exchange in August, 1953, producers may derive some encouragement from views expressed by Mr. T. E. Veltfort, managing director of the Copper and Brass Research Association in the U.S.A.

Mr. Veltfort draws attention to the long-term benefits which may be expected to result from the foresight shown by producers in exploration and development, especially during the past decade. He estimates the developed or indicated copper content of free world ore reserves at 164,710,000 tons. At the current rate of free world consumption—placed at 3,500,000 tons per year—and ignoring the certainty of substantial new discoveries which should offset increased consumption, the free world has thus a conservatively estimated reserve sufficient to meet requirements for 50 years.

These figures are in broad agreement with the calculations of the International Geological Congress, quoted by Sir Ronald Prain in a recent lecture at the Royal School of Mines (*The Mining Journal*, November 29, 1957, p. 658), according to which indicated copper reserves for the whole of the world might be of the order of 190,000,000 tons of recoverable copper, capable of supplying all requirements for 60 years at the present rate of consumption, or for 48 years if the rate of consumption should increase, as is anticipated in the next five years or so, to 4,000,000 tons.

Mr. Veltfort emphasizes that unfounded rumours that copper would forever be in short supply have been refuted by greatly increased productive capacity. Now, with world supply of copper running a little ahead of demand for the first time since World War II, producers and fabricators have been able to build up their inventories to the levels of 30 or 60 days formerly considered normal. Current refinery and fabricator stocks in the U.S. are described as comparing favourably with the situation as it existed in 1937 and again in 1946. Moreover, the fact that government stockpiling requirements are down is advanced as a further reason for optimism in copper's availability.

During the past decade, with wide fluctuations in copper prices and periodic shortages, substitute materials have been used as compromises in a number of production applications. Now, under present price levels and the demonstrated availability of copper, the threat posed by these substitutes is losing force.

As Sir Ronald Prain put it to R.S.T. group shareholders at their formal meeting in London last week, at one end of the scale are uses which have been lost to other metals and are unlikely to be regained, whatever the price differential; at the other end copper usage for many purposes is well assured almost irrespective of the price. In between there is a critical "grey" band which, according to Noranda Mines Ltd., of Canada, represents about 8 per cent of the present world production (say 250,000 tons).

It is in this section of the market that there is obviously the fiercest competition and it is to the development of new uses and

more efficient utilization in this section that the efforts of the Copper Development Association and its corresponding bodies in other countries are being particularly devoted. Quite a lot of copper in the grey zone was lost to aluminium when prices soared and the return to lower levels has so far only arrested this trend.

The copper industry, through its research associations and through individual companies, is widening its research activities to provide the industry and its customers with up-to-date information on end-uses.

According to Mr. Veltfort, new developments within the copper industry and by users promise a continued healthy growth in the market for copper and its alloys. Copper continues to be preferred for new and remodelled domestic plumbing, heating and electrical systems, and for gutters, downspouts, flashings, exterior hardware and lighting fixtures. Copper is intimately tied-in with electronics—a rapidly-growing field where the metal's high conductivity, ductility and ease of joining combine to make it unbeatable for many applications. Electronic computers make extensive use of copper—Remington Rand's Univac II uses more than 8 s.tons of copper and copper alloys.

Copper's excellent heat transfer properties are ideally suitable for applications in the process industries, where the trend is towards higher heat transfer efficiencies and faster production rates.

No other material can equal copper's desirability for an almost infinite range of electrical wiring applications.

Other new applications where copper is preferred or essential include solar heating, some radiant-heating systems, and domestic and commercial snow-melting installations.

Moreover, as Sir Ronald, Mr. Veltfort and others have stressed, users can now be encouraged to design copper into new products and to standardize on copper in the area of substitution in the knowledge that the industry now has a reserve of current production capacity in addition to the new planned capacity which can become available in the next few years to meet any likely expansion in demand, and to assure the user not only that copper will continue to be available but that it will be available at a relatively stable price.

Certainly the consumer has shown himself to be more concerned about the volatility of the post-war copper price than about the precise level at which these fluctuations even out. Given that we may now expect relatively stable prices in consequence of producers cutting back their production to achieve equilibrium, it is pertinent to speculate upon what the producers are likely to regard as an optimum price at which to stabilize. Several of the U.S. producers have been arguing for some time past that this should be in the region of 35 c. per lb.

This figure compares remarkably closely with an estimate made by Sir Ronald Prain in an article in the *Financial Times* just over two years ago. At that time he put the optimum at between £240 and £280. Above that level he foresaw an increasing danger of substitution. Below it he doubted whether the profits of the industry would be sufficient to ensure the creation of new capital required for the replacement of exhausted deposits as well as for the long-term expansion of the industry—without which the consumer could not be assured of his long-term supplies, and consequently of stable prices.

Costs have risen since Sir Ronald wrote this article, so it could well be that he, too, would regard 35 c. per lb. (£280 per ton) as about the "right" price. How quickly this is achieved must surely depend on the producers' collective readiness to cut back production now.

That Mr. Veltfort's confidence in the long-term future is shared by producers is, of course, abundantly demonstrated by the number of major expansion programmes cur-

rently in progress in the principal producing countries. More surprising, perhaps, is his statement that 1958 "looks as bright as the metal itself".

In this connection it is pointed out that during the first nine months of 1957, in the face of falling prices, customers have been working off their inventories. One major producer has estimated that 20 per cent of total U.S. consumption of copper during this period came from consumer inventories. According to the latest statistics issued by the U.S. Bureau of Mines, apparent consumption of new refined metal in January-September, 1957, was 909,900 tons, which appears to indicate a figure of approximately 1,200,000 tons for the year, compared with 1,326,400 tons in 1956. Producer inventories increased 57,905 tons from January through September, reaching an industry total of 173,679 tons. However, based on the present rate of consumption, this is regarded as by no means an alarming surplus.

Up to a point Mr. Veltfort's optimism is in accord with a review of the U.S. copper industry by the Business and Defence Services Administration. This report states that the most encouraging factor during 1957 was the sustained volume of business done by copper wire mills. Estimated shipments of copper wire mills at 792,000 s.tons were the second highest in the history of the industry, having been exceeded only in 1956. Assuming a continued high demand by the power, communications and electrical equipment industries, with a possible improvement in the construction and automotive industries, 1958 might be another relatively favourable year for copper wire mills, with demand off only moderately from 1957. On the other hand, brass mill shipments in 1957 were the lowest in many years and no immediate increase in demand for brass mill products is indicated from the durable goods industries.

The Agency said that the continuing maintenance of inventories of fabricators and their customers might have a stimulating effect when the anticipated increase in demand for copper occurs this year. It is pointed out, however, that increased demand by copper consumers, even if it occurred, would have the immediate effect only of working off inventories of refined copper, which are the highest in many years. Production of copper is generally conceded to be considerably higher than present or prospective demand for the next year. Consequently, prices may remain depressed at least until well into 1958 in the absence of any further substantial cutback if those so far reported are equivalent to about 200,000 tons p.a.—excluding whatever Chilean cuts eventuate.

The seasonal rise in U.S. domestic demand for copper-base products during the fourth quarter of 1957 is expected to extend into the first three months of the current year, but current trends point to a probable levelling off in demand during the first half of the year. However, B.D.S.A. considers there are good prospects for an upturn in demand starting in the third quarter.

If this assessment of the outlook in the U.S. indicates that 1958 may not be such a bright year for copper producers as Mr. Veltfort appears to hope, it does at least offer some grounds for believing that the tide may not be long deferred, particularly in view of the high level of consumption currently prevailing in other Free World countries. Optimism should be tempered with caution, however, until it becomes more certain that the recession in the U.S. will be of as brief duration as most government spokesmen and industrial leaders now predict.

Sir Ronald Prain certainly impressed upon shareholders that, while he welcomed the fall in prices as assuring the long-term stability of the copper industry, there were lean times immediately ahead and reduced profits must be anticipated in 1958, whatever improvement in the supply-demand picture may take place later in the year.

THE GOOSE WITH THE TUNGSTEN EGGS

Portugal is still mining wolfram, although this commodity is now quoted in London at roughly a third of the prices ruling at the beginning of 1956. As in other producing countries, the tungsten industry is up against the difficulty that, although prices have ceased to be remunerative, output cannot be entirely suspended. It would be unduly costly to re-open a mine once it was paralyzed. Moreover, the Portuguese industry is still hoping for government subsidies or for a recovery of world prices.

This situation is reflected in the production figures for January-August, 1957 (the latest period for which statistics are available), according to which output was still quite close to the level of 1956—2,417 tonnes against 2,606 tonnes. Producers are concentrating on the better sections in the mines in order to cut average costs, but it seems evident that this practice must inevitably lead to higher costs of development in the future.

The producers claim that they have a right to some kind of official assistance in bad times such as the present. They argue, with what appears to be considerable justification, that the State skims the cream off their higher profits when times are good, hence they have a right to help when business declines. Their plight certainly merits the governments' most sympathetic consideration, apart from any other reason, on the principle that the goose which lays the tungsten eggs is worth keeping alive till prices recover.

Spanish wolfram ore exports have been exempted from taxes in view of the low world market prices and the increasing difficulties encountered by exporters, but so far the authorities in Portugal have taken no action.

MINING PROGRESS IN THE PHILIPPINES

Philippine mining production during the fiscal year 1956/57 reached the record value of 215,384,121 pesos, showing an increase of 15 per cent over the previous fiscal year. About half of the total value of mineral production came from sales of base metals, principally copper, chrome and iron. Base metal shipments amounted in value to 108,694,749 pesos.

The decline in the price of copper, with no prospect of a rise in the near future, has put a brake on the development of new deposits, especially those of low grade with little or no gold content in the ore. Lower copper prices have also caused producers to seek relief from the government in the form of reduced tariffs and liberalized barter privileges.

Indicative of Japanese interest in the Philippines' base metal resources was a loan of U.S.\$2,500,000 secured by the Atlas Mining Development Co., of Toledo, Cebu, from the Mitsubishi Metal Mining Co., which is to be repaid in copper ore at the rate of 8,000 tons of concentrates a month.

The Phelps Dodge Copper Products Corporation has started construction of a plant to manufacture copper wire and, later, other products using copper produced by Atlas.

On September 4 the cabinet approved the terms and conditions under which the government would accept bids for the development of the nickel deposits in the Surigao mineral reservation. Owing to various unattractive features in the conditions of the bid, foreign interest waned considerably and no offers were received. The possibility of issuing a new invitation under more favourable terms is now being examined.

A total of 611,266 tonnes of refractory ore, valued at \$7,797,650, was shipped during 1957 by the Consolidated

Mines, Inc. This compares with the 1956 total of 581,685 tonnes, valued at \$10,166,440. The biggest importer was the U.S., which in 1957 bought more than 85 per cent of its refractory chromite requirements from the Philippines. Other buyers included the U.K., Canada, Japan and Australia. Demand for chrome and manganese ore has temporarily softened. Exporters also fear a decline in shipments of ores and concentrates to Japan.

On August 10 last year the Central Bank relaxed further its restrictions on the use of blocked pesos for the purchase of newly-mined gold by releasing all blocked accounts for the purchase of gold bullion instead of limiting the privilege only to the unremitted portions of investment returns, as formerly, and also by including all blocked peso funds declared to the Exchange Control Department instead of limiting the privilege to assets declared up to September 30, 1956. These relaxations were expected to free over 60,000,000 pesos in blocked funds. Liberalization of the Central Bank's policy to authorize additional blocked peso funds for gold "switches" raised the local free market price of gold to 124 pesos. Sales to blocked peso holders continued at 127.50 pesos per f.oz. The latter higher price is due to the delay of about two months before the mining companies are paid after execution of sales agreements.

PAKISTAN'S MINERAL RESOURCES

Considerable progress has been made since Independence in the exploitation of Pakistan's resources, writes our correspondent. Chromite and gypsum are Pakistan's best foreign exchange earning minerals.

More than 20,000 tons of chromite mined in the Hindubagh, Chaghi and Zheb area are exported every year bringing in nearly Rs.4,000,000 in foreign exchange.

Under a recent contract, according to Mr. Muhammad Yasin, Chief Inspector of Mines, Pakistan, 20,000 tons of gypsum worth about Rs.300,000 are exported to India every month. Gypsum mined in the Kalbagh area is said to be of the highest purity.

Pakistan's output of coal has increased from 250,000 tons in 1948 to 600,000 tons per annum at the present time. More than 300 mines are being worked in nine coalfields situated in Makarwal, Katha, Dandaut, Jhimpir, Sore Range, Dagari, Mach Sharegh and Khost.

Iron ore deposits in the Kalabagh area consist of a 12-ft. thick seam extending over 12 miles. The ore, which contains 30 to 45 per cent iron, would feed the proposed steel plant at Multan.

A refinery has been set up at Quetta for the treatment of sulphur deposits found in Kohe-e-Sultan. Mining engineers are now exploiting deposits of asbestos and magnesite in the Hindubagh area.

Mr. Saleh Muhammed, Pakistan's Minister for Industries, recently disclosed the discovery of gold deposits worth Rs.200,000,000 at Nushki in the Kalat Division of West Pakistan. The Government of Pakistan has already completed a survey and the provincial government will soon start exploiting the deposits.

The Minister also disclosed that large deposits of ore containing 94.5 per cent copper had been found in North Waziristan. These would be exploited under the government's new mining programme.

The proposed Mineral Development Corporation, a semi-official organization to be run on the lines of the Pakistan Industrial Development Corporation, is expected to start functioning early this year. The Corporation will mostly undertake the exploitation of minerals such as copper and aluminium.

Chile's Plight

THE Chilean Copper Department has at last recommended a cut of 10 per cent in copper output at U.S. mines in the country. There still appears to be some uncertainty about the announcement, however, for with it was linked a suggestion that other producers should follow Chile's example. Anglo American and Union Minière have not so far announced a curtailment.

Chile's reluctance to cut production, if short-sighted, is understandable, bearing in mind the country's heavy dependence on the state of the copper market. A Latin-American economic expert has estimated that every penny drop in the copper price means a cut of \$7,000,000 a year in Chile's export income.

Effects of Falling Copper Prices

From the start of the Korean War until early in 1956, Chile sold all the copper it could produce at prices which kept trending upwards. This situation was reflected by a rising standard of living, wage increases and a growing demand for imported goods, all of which added up to inflation. Then copper prices started declining and the fall became faster and faster; yet at the same time, prices of a number of imports—such as U.S. motor cars—still went on rising. In the first ten months of 1957 Chile's holdings of gold and dollar reserves were halved. Imports were slashed, but with wages and employment still at high levels, the demand for goods remained strong and domestic prices kept on rising. According to *The Wall Street Journal*, a Chilean family now has to pay for normal living expenses seven times what it paid as recently as 1955.

The fall in the price of copper caused an increase of \$60,000,000 in the foreign debts of Chile during 1957. On several occasions the government was forced to request foreign credits to cover the gap in its dollar income. The debts comprise \$5,000,000 from the American Federal Bank, on account of a \$15,000,000 loan; \$12,500,000 from the Export-Import Bank; \$18,750,000 from the Monetary Fund, to be renewed on March 31 when stand-by settlements are due; and \$25,000,000 in debt instalments due in 1957, which were not covered.

Caja de Credito Minero

Between September and December, 1957, alone, the fall in the price of copper caused a loss of 719,109,686 Chilean pesos (over \$1,000,000 at the official exchange rate) to Caja de Credito Minero (the Mining Credit Bank). The loss was covered by extraordinary grants from the Central Bank and the Copper Department.

Caja de Credito Minero buys copper ores from the small and medium miners, processes them in its refinery in Paipote, North Chile, and sells the resulting blister copper

to foreign buyers, mainly in Germany. By September, it found that it could no longer maintain its purchase prices for copper ores, owing to the fall in world markets. On the other hand, a reduction of its rates would have meant the closing down of most of the small and medium mines. It was then decided to maintain the rates even at a loss.

During 1957, Caja de Credito Minero purchased 278,798 tons of ore and paid out 7,963,560,147 Chilean pesos. Its foreign sales produced an estimated \$10,393,584.

Despite existing difficulties three new copper refineries are to be built in Chile this year to cover the needs of the small and medium miners—another striking example of confidence in the long-term future of a metal which is probably the oldest of all industrial materials. The present refinery at Paipote, working at capacity, does not cover the entire needs of the small miners. In 1957 it treated an average of 11,500 tons of ore per month and produced an average of 1,300 tons of blister copper monthly.

Caja de Credito Minero and its branch Empresa Nacional de Fundiciones decided early last year to build a new refinery for the central part of Chile. After prolonged argument, during which many points of view were expressed, a decision was taken to build it at Ventana de Quintero on the Pacific coast, some 140 km. from Santiago. It is felt that this new copper refinery, which at first will produce only blister but eventually will be converted to the electrolytic process, will aid the development of new ore fields in this region.

Caja de Credito Minero and Empresa Nacional de Fundiciones have also approved the conversion to copper refining of a cement plant at Juan Soldado, recently closed because of lack of markets, and the construction of a third refinery at Ovalle, midway between Santiago and Paipote.

It is further reported that the Minister of Economics has signed a decree authorizing a \$700,000 credit for the development of copper deposits at Mantos Blancos in the Province of Antofagasta.

Appeals in Tax Disputes

An important principle is involved in tax hearings at Santiago, where the Court of Appeals has rejected a suit brought by Chile Exploration Co. and Andes Copper Mining (both Anaconda companies) against the Chilean Income Tax Department, demanding the repayment of \$6,200,000 in back taxes which—according to the firms—had been unduly collected. A similar suit by Braden Copper for \$3,200,000 has recently been rejected. Both Braden and Anaconda were appealing to the Supreme Court.

Both companies allege that, in estimating their taxes for 1956, the Chilean officials did not comply with the provision of the law that all taxes paid, with the exception of the income tax itself, may be deducted. In this particular case, the conflict arises from law 11.137, which increased some categories of income tax. The companies allege that this increase can be deducted because it is not the original tax, which is the only exception to the law. The legal departments of both companies have appealed and they hope to obtain a reversal of the present decision.

Directors of the Chilean Copper Department say that at the moment they have no knowledge of the possible sale to the Soviet Union of 20,000 tons of copper. Recently there were unofficial talks in Paris for the sale of that quantity of 6 mm. copper wire to the Soviets, but no final decisions were reached. *Prima facie*, it seems unlikely that the Soviet Union would buy Chilean copper wire, since its price is equal to, or higher than, the comparable British or German product, and extra freight charges would be incurred.



Part of the fleet of 36 Caterpillar DW20 units with W20 wagons, 16 Caterpillar D8 tractors and four Euclid elevating loaders, to be used in initial earthmoving operations at India's Neiveli lignite mine

THE beginning of overburden removal at the 200,000,000-ton Neiveli deposit (see *M.J.*, July 19, 1957), was the occasion for vast speculation on the possible future of the State of Madras, one of India's less developed industrial areas. Although some small industry exists in Madras, lack of electrical power has held development to a minimum. Indians see all of this changed as the Neiveli lignite field begins to supply power to the area.

dozers and rippers, break loose the material and maintain the area. The loaded DW20s carry the earth to a stockpile where it will be kept until exploitation of that section has been completed. In all, the Cat rigs will handle about 50 per cent of the box cut before the first excavator has been assembled.

A total of four of the excavators will eventually be used in the mine; the first two of 350 litre capacity and the last two of 700 litre size. When the first excavator begins operation, a conveyor belt system will be used to raise cover to the surface and on to the stockpile, along with the DW20s. By the end of 1959, the second of the two smaller excavators will be in operation. The large units will follow; the first in 1960, about the time the lignite is reached

Neiveli Strips For Action

The huge deposit is being developed by Neiveli Lignite Corporation (Private) Ltd., a 100 per cent government organization, at a projected cost of U.S.\$147,000,000 (Rs. 70 Crores). It will take about 60 years to fully exploit the reserves at the planned rate of 3,500,000 tons annually, allowing for increased rates as the years pass. Covering a 20 sq. mile area, the deposit will be worked by open pit methods, despite the fact that the seam lies 180 to 250 ft. below the surface. Underground exploitation was ruled out because of heavy artesian water exerting a pressure of about eight tons per sq. ft. of lignite.

Existence of lignite in the area was known for some time, but only came into prominence in the late 1930's. In 1954, a pilot pit was sunk to determine the most effective method for working the deposit. The pit was taken through 180 ft. of clay and Cuddalore sandstone to contact the 55-ft. seam of lignite. From information gained in this pit, plans were formulated for the best means of successfully working the deposit.

The mine will be worked in sections, using LMG bucket-wheel excavators in parallel advance and swinging pit methods of operation. As the seam is depleted in each section, the excavators will move on to the next section and fill the old one. During the entire operation, the mine cut will be no larger than 6,000 ft. long and 1,200 ft. wide at any time. A series of three benches will be used to reach the seam level.

The first section, consisting of 5½ sq. miles, has overburden running to 250 ft. deep. Neiveli Lignite Corporation decided to use American earthmoving machinery to remove as much cover as possible before the latter part of 1958. At that time, the first of the large excavators will be ready for operation.

Initial earthmoving was begun in late May, 1957, using 36 Caterpillar DW20 wheel tractors equipped with W20 wagons, hauling 61,000 lb. at a trip. Four Euclid elevating loaders, pulled by Caterpillar D8 tractors, load the earth into wagons. Twelve additional D8s, equipped with bull-

Under 27 billion cu. yd. of clay and sandstone overburden lies what India hopes is the key to its industrial future—lignite.

and earthmoving completed. At a later date, the second unit will be assembled at the site. When the excavators are all working, the D8s will perform general purpose work in the mine, cleaning up and building roads.

After lignite removal has begun, the conveyor system will handle the brown material and, as each section is worked out, overburden from the next section will be cast into the empty pit. At the same time, the DW20s will haul spoil from the storage pile to finish out the fill.

Because of the artesian water, at least 48 wells will be sunk around the pit, to remove up to 48,000 g.p.m., keeping the water at a safe level below the lignite.

Tests have shown that the lignite contains 50 per cent moisture, 25 per cent volatiles, 22 per cent carbon and 3 per cent ash. Raw lignite will undergo a partial dehydration process and be pressed into briquettes for easier handling and shipping. Briquette production is planned at 714,000 tons yearly when the project is in full swing. Thermal value of the lignite is about 2½ tons of lignite to one ton of high-grade coal, but cost of that 2½ tons will be about half that of a ton of coal shipped into Madras.

Once the lignite is being produced, the Indian Government will construct a thermal generating station near the pit to produce the electricity so badly needed in the area. Initially, the station will have a rated capacity of 211,000 kW. hours, which exceeds the present demand, but falls short of the projected needs. As demand grows, additional stations will be built. In a practical move, the incoming power lines for the big excavators, from generating stations miles away, will be used as part of the outgoing lines from the generator station after the fuel source is able to be used. Excavators will then be powered directly from the plant.

Algom's New Uranium Mines at Blind River

INCORPORATED in July, 1953, Algom Uranium Mines Ltd. acquired approximately 630 of what were considered to be the best claims staked in the Blind River district by Preston East Dome Mines Ltd., a further five claims being staked at later dates which brought the total up to 635 by February, 1957. Of these, patents had been obtained or applied for on 263 claims, the other 372 being also regarded as of good standing.

The main uranium ore-bearing structure of the Blind River area lies roughly in the form of a reversed "S" and is of conglomerate formation. The first discovery in the area was that of Pronto Uranium Mines Ltd., another member company of the Rio Tinto Group, and this lies on the most southerly arm of the reversed "S", though the biggest concentrations of uranium ore have been found on the most northerly and middle belts of the district.

By the winter of 1953-54, a heavy diamond drilling programme by Algom had outlined an orebody at the Quirke property in the north. Initial drilling here showed an estimated reserve of 7,500,000 tons yielding 2.12 lb. of uranium U_3O_8 to the ton, and it was on the basis of this that Algom decided to erect a 3,000-ton mill at Quirke Lake. Further south, drilling in the Elliot Lake area showed an estimated reserve of 6,200,000 tons yielding 2.26 lb. uranium U_3O_8 to the ton, and led to the decision to build the 3,000-ton daily capacity Nordic treatment plant. At the same time, plans for the underground working of the Quirke and Nordic mines were put in hand, together with housing facilities and other requirements necessary to large-scale mining ventures. R. M. Way and Co. Ltd. were retained to design the surface plant and supervise its construction.

Against a background of feverish activity in what is proving to be one of the world's largest known uranium mining areas, Algom Uranium Mines Ltd., a member of the Rio Tinto Group in Canada, officially brought into operation in February, 1957, two important mines, the Algom Quirke and the Algom Nordic, together with their respective 3,000-ton mills, for which the Rio Tinto organization in London put up no less a sum than \$41,100,000 to back the venture.



At this time, metallurgical test work and mineralogical research became of the utmost importance. Research was currently under way at the Ottawa laboratories of the Radio-Activity Division of the Mines Branch in connection with Pronto ore and this was extended and enlarged to deal with sample ores from the Algom property. This work was conducted under the supervision of Mr. R. P. Ehrlich, who was then employed by Technical Mine Consultants Ltd. (later to be employed by Rio Tinto Management Services Ltd.) and who was engaged as consulting metallurgist for Algom.

On the basis of the drilling results, a premium price contract was entered into in 1955, between the company and Eldorado Mining and Refining Ltd., the government buying-agency, through whom all Canadian-produced uranium has to be sold, and with whom, in turn, the United Kingdom and United States Governments deal. This contract provided for the sale by the company to Eldorado of uranium product to a value of \$206,910,000 over a period of about five years. The contract premium price is believed to be

By J. GRINDROD

rather more than \$10 per lb. of uranium U_3O_8 contained in the concentrate. It was the largest contract issued by the agency of the Canadian Government to that date and, even today, taking into account contracts since issued and announced extensions to existing contracts, it remains the second largest of all uranium contracts, yielding pride of place only to that entered into between Northspan Uranium Mines Ltd. and Eldorado.

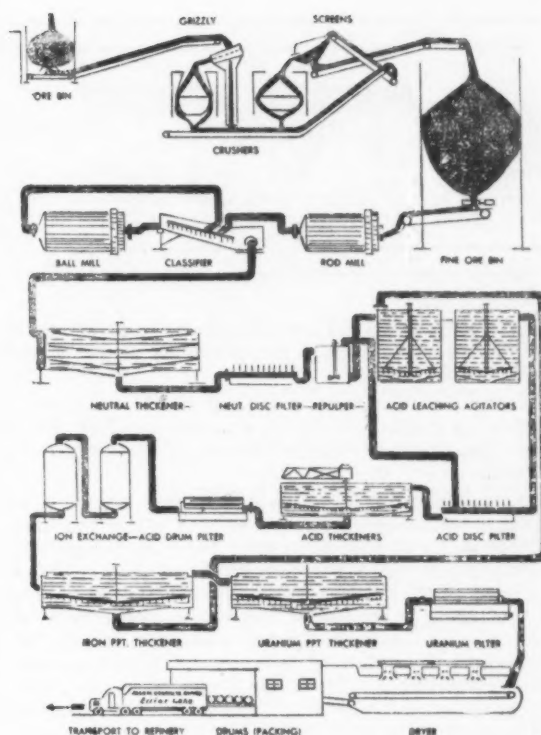
A complete surface plant was designed for each of the Quirke and Nordic properties with concentrators at each planned for a nominal milling capacity of 3,000 tons per day. This 6,000 tons per day put the company in a major position in the district, again being second only to Northspan, whose three plants have been designed for a total of 9,000 tons a day. Several differences in construction and design between the Quirke and Nordic plants have been incorporated to promote maximum efficiency at each loca-

tion. Preparations at the Quirke site were begun in April, 1955, and the plant was completed and turned out its first product in October, 1956. The Nordic site preparation was started two months later than at Quirke and the plant was substantially completed by the end of 1956. In both cases, mine development and preparation were carried out simultaneously with the surface programme. At the Quirke property a shaft was sunk to 860 ft. depth while a shaft to 890 ft. depth was sunk at Nordic.

The Quirke and Nordic properties lie about seven miles apart and are located, facing each other, respectively on the south and north dipping limbs of a large synclinal basin. The orebodies at each location have a similar flat dip and plunge, though in opposite directions. Within the matrix of a quartz pebble conglomerate the uranium occurs as brannerite, uraninite and pitchblende mineralization.

According to the Algom mine manager's report for 1956, ore reserves, which include only ore proven or fully developed by underground workings and ore indicated by drill holes with a maximum spacing of 1,000 ft., then amounted to 31,201,510 tons, having an average diluted grade of 2.43 lb. uranium U_3O_8 per ton. These reserves include the main horizon only and are located in an area approximately one-quarter of what is believed to be the potential productive area of the Quirke and Nordic orebodies and which are fairly well defined by known ore on adjoining properties. This estimate of reserves is considered by the company to be conservative. With a sufficient reserve of ore to ensure production for many years to come the company has in fact concentrated on bringing the properties into production as soon as possible. The thickness of the ore bed at the Quirke property has been given as 12.2 ft. and that at Nordic as 9.5 ft.

Although the two properties lie on the same synclinal basin, the degrees of dip at the Quirke and Nordic mines differ, being 30 to 35 deg. and 18 deg. respectively. This degree of dip of the ore-bearing strata has largely determined the mining method adopted at each location. At Quirke the conventional panel method of mining is being employed. Drilling is carried out by airleg machines, while scrapers push the broken ore down-dip in the stopes to collection raises. Tracked haulage trains are used on the levels for taking the ore to the underground primary crusher after passing through which it is hoisted to the mine-head in 7-ton bottom-dump skips. In the same shaft, which is



timbered with B.C. fir, there is a large passenger elevator with counterweight, a manway and a ventilation shaft. Hoists for both skip and cage arrangements are 10 ft. double-drum units driven by 650 h.p. and 350 h.p. motors respectively.

During 1956, development work in the Quirke mine consisted of 10,878 ft. of drifts, 2,201 ft. of cross-cuts and 6,262 ft. of raises, totalling 19,250 ft. and bringing the total development work at this property to 31,116 ft.

Provision has been made to backfill the stopes, using coarse tailing sands.

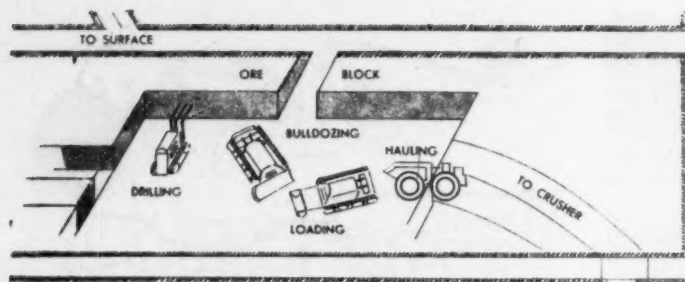
At the Nordic mine, a pillar and stope method of mining has been developed which involves the use of trackless haulage, diesel and diesel-electric equipment. Crawler-mounted jumbos are used for drilling, while the broken ore is moved in the stopes by crawler bulldozers for loading at ramps on to rubber-tyred shuttlecars and dumptrucks, which take the ore for delivery to the primary crusher. Pillars and stopes are both 100 ft. in width and here, again, the stopes are to be filled with mill tailings. To provide against the accumulation of exhaust gases from the diesel equipment,



Above left: The Algom Nordic Mine

Above right: The milling method used at both the Algom Quirke and Algom Nordic mines

Opposite: The Algom Quirke Mine



Illustrative sketch showing the method of trackless mining employed at Algom Nordic

those of silicious ore and possible radioactive gases, special attention has been paid to the ventilation at the Nordic mine.

During 1956, development work at Nordic consisted of 7,820 ft. of drifts, 3,373 ft. of crosscuts and 5,683 ft. of raises, bringing the total development of the property to 16,992 ft.

The surface plant which deals with the acid leach-ion exchange treatment of the ore at both plants has been designed as far as possible so as to make use of standardized equipment, but slight differences had to be accepted as a result of the differing locations of the two plants. The chief of these is the use of ten 100 ft. counter-current decantation thickeners at Quirke, whereas at Nordic, because of the lie of the land, agitators and filters have been used. Furthermore, only at the Nordic plant has slurry drying and concentrate packaging equipment been installed, Quirke slurry being taken over to Nordic for this final process in tank trucks.

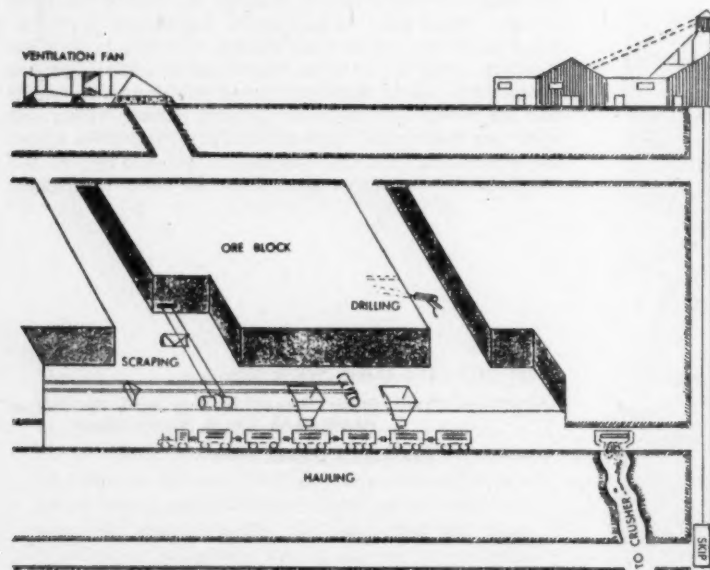
The company-owned railway siding serving these mines was improved during 1956 by the addition of an eight-car spur and facilities were erected for handling lime. Algom has joined with other mining companies in the area as well as government departments to study water supplies and tailings disposal areas. As a result, water for Nordic and some other mines will be supplied from Pecors Lake, some five miles east of the plant. Construction and equipping of a pump house, laying pipe lines and a stream diversion were necessary for this.

In the meantime, further research in metallurgy has been carried out by Algom and a method of recovering thorium

has been proved by an agency working for the company. The processes involved were being patented so as to be available should the company decide to recover this metal from its ores.

The number of persons employed by Algom at its mines sites at the end of 1956 exceeded 1,400 and this number has since been increased to approximately 1,650. A special township is being developed at Elliot Lake.

During April, 1957, the Quirke mill handled 3,175 tons of ore daily with millheads averaging 2.04 lb. of uranium oxide per ton. In the same month the Nordic plant handled 3,175 tons daily with millheads averaging 2.45 lb. per ton. Indications now suggest that each plant can probably handle 3,500 tons daily and a total mill rate is expected to average 6,500 tons per day in 1957 and 7,000 tons per day thereafter. Operating costs are estimated at \$9.50 per ton during 1957 and \$8.50 per ton from 1958 onward, capital expenditure being in the region of \$500,000 annually. The price of uranium oxide will be \$10 (or possibly rather more) per lb. during the life of the present government contract which expires in 1963. Beyond that date, the future of uranium's marketing policy is not too clear. Whether individual mines will be able to build up their own markets then, subject to deals being approved by the government, remains to be seen. What, however, is certain, is the fact that uranium mining has become one of Canada's major industries involving hundreds of millions of dollars of capital investments. In 1958 it is expected to become the largest single branch of the Canadian mining industry with the annual output estimated to be worth \$300,000,000 or more.



Illustrative sketch showing the conventional mining method employed at Algom Quirke

Technical Briefs

The Alchemist's Nightmare Comes True

Unconfirmed reports from New York indicate that the Oak Ridge Laboratory of the AEC in Tennessee has made new accomplishments in the transmutation of metals, especially the changing of gold into mercury. While the AEC scientists have achieved much with respect to transmutation in the radioactive element area, it is also believed that they have done significant work in the non-radioactive areas.

The mercury transmutation process is being explored by a photographic equipment firm for commercial purposes in connection with supersensitive measuring instruments, according to the Mineral Information Service of the State of California.

Transmutation research with mercury in the United States proved successful as early as 1940. In that year, at the University of California, according to the Mineral Information Service of the State of California, a reaction was achieved whereby a neutron was joined to gold with an atomic weight of 197 (Atomic No. 79) to form "unstable" gold 198 (Atomic No. 80) and traces of stable mercury 198 (Atomic No. 80), an isotope.

In 1945 small amounts of mercury were produced at Oak Ridge by bombarding gold with neutrons in a reactor. At that time, the bombardment reportedly required a long time, perhaps over a year. Since then the process is believed to have been speeded up (perhaps not yet economic) and a number of metal scientists feel that big news may be in the making within the next five years in connection with transmutation of elements outside the category of nuclear metal reactions.

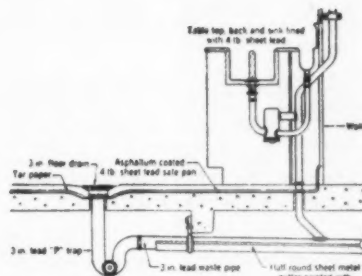
In the transmutation process it is understood that the isotope, mercury 198 is produced. This is one of the seven components (about 10 per cent) of which natural mercury 200 consists, from the physical chemist's point of view.

ELECTRICITY IN COAL GASIFICATION

The use of high-voltage electricity to prepare an Alabama coal seam for gasification is described in a United States Bureau of Mines technical report.

The method, known scientifically as "electro-linking carbonization", was developed by inserting electrodes in boreholes deep in the coal and passing a current between them with the coal bed acting as a conductor. Heat generated by the current carbonized the coal between the electrodes, creating a porous pathway through which gas-making fluids could pass. Air or some similar fluid was then pumped into this pathway through one of the boreholes. The air reacted with the hot coal, producing a usable gas which was withdrawn through another borehole.

The electro-linking tests were one phase of research being conducted by the Bureau and the Alabama Power Company at Gorgas on underground gasification. Electro-linking is one of several techniques tested at Gorgas in a search



for such a method and, according to the Bureau's report, it shows promise. After employing the method to prepare different areas of a coal-bed for gasification, several tests were made with air, oxygen, steam, or various mixtures as the gas-making fluids.

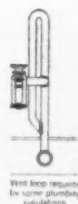
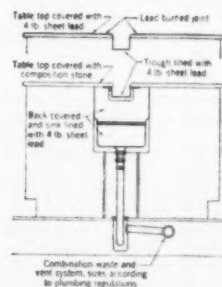
LEAD IN LABORATORY DRAINAGE SYSTEMS

In chemical processing plants, the piping, storage, and other equipment for handling corrosive chemicals may be designed with specific reference to the corrosion resistance of materials to the

Detailed drawings of suggested methods of installing lead waste lines for wall laboratory tables and centre laboratory tables with centre troughs and end sinks are included in "Lead Building Construction Bulletin No. 3". Above, a wall laboratory table with centre troughs and end sink

particular chemicals to be handled. In other laboratories, however, materials must be selected which have good corrosion resistance against the widest possible variety of chemicals, because there is no prior knowledge of what chemicals may be used.

Since lead is probably more resistant to corrosion by a greater variety of chemicals than any other common metal,



it is therefore one of the most useful materials for laboratory piping, fittings, sinks, troughs, and the like.

For the guidance of architects and engineers who wish to take advantage of the excellent characteristics of lead in laboratory design, Lead Building Construction Bulletin No. 3, *Specification for Lead Chemical Laboratory Drainage Systems*, has just been released by the Lead Industries Association, United States.

Among the properties of lead that are listed as attractive for laboratory usage is the fact that lead has greater resistance to corrosion by a greater variety of chemicals than any other common metal. It is also easy to install, with a minimum of joints, since it can easily be bent for changes of direction, and will take up movement or expansion and contraction without damage.

Joints in lead are burned, thus presenting only lead as exposed to the corrosives. Also, because lead is adaptable to most conditions, the cost of alloys does not arise.

Specifications applicable in the United States for chemical laboratory drainage systems are included in an enterprising publication.

HIGH TEMPERATURE RUST PREVENTION

Glostack, a new high-temperature coating designed for the protection from rust of steel chimney stacks, furnace doors, and other steelwork subjected to high operational temperatures, is a metal coating supplied in liquid form, and is applied by normal paint techniques. It is simple to use, as it does not need the addition of any hardener, accelerator, or curing agent. The surface to be protected is suitably prepared, and then Glostack is brushed on to the cool surface. The coating article may be put back into service as soon as the coating is touch-dry, which takes about two hours.

Experience during development has proved that the Glostack coating recently introduced by Corrosion Ltd. will stand up to temperatures well over 800 deg. F. for long periods. In addition, it has the property of being stable and unharmed by a wide range of temperatures from normal atmospheric temperatures to the upper limit quoted.

ZINC-PLATING PROCESS

A new conversion coating for zinc-plating which produces a bright, clear finish without leaching in processes where maximum corrosion resistance is secondary to bright appearance, is reported in Detroit, U.S.A., by Wagner Brothers, Incorporated.

The resultant finish provided by the coating has a minimum of iridescence, the company says, and can be applied over both barrel and rack-plated parts.

MINING MISCELLANY

The Ceylon Mineral Sands Corporation will undertake the establishment of an ilmenite refinery at Pumoddai capable of dealing with 100,000 tons of raw sand annually, a capital investment of Rs.8,000,000 being required.

An important step in the development of the Toquepala copper deposits, Peru, was the recent completion of the Southern Peru Copper Corporation's private pier in the Bay of Ilo.

In a progress report issued on November 18 from the Patience Lake mine of the Potash Co. of America Ltd., 15 miles east of Saskatoon, it was stated that the shaft had reached a depth of 2,400 ft. It is to be sunk to a little more than 3,000 ft. The report said that in the absence of unforeseen difficulties, the shaft could be completed by May and the mine could be ready for production by the end of 1958.

A staking rush took place in Canada after a copper strike had been reported around Crilley, 60 miles east of Fort Frances, Ontario. More than 100 claims were registered in the area, 65 of them by Noranda Mines.

The South-West Africa Co. have announced that the Abenab west workings are to be closed down, due to the decline in base-metal prices. About 50 employees are affected.

M. Gerard Jaquet, Minister for French Overseas Territories, has stated that the French Government has "the firm intention of building the Kouilou hydro-electric dam" in the Middle Congo.

A South Australian mineral discovery, announced by Sir Thomas Playford, the Premier, in November, is believed to be beryl. Recently, Mr. J. E. Johnson, a South Australian prospector, was reported to have discovered quantities of "well-developed prisms of bluish beryl" at Antro in the Crockers Well uranium field area.

Mary Kathleen Uranium, on the advice of the Rio Tinto Mining Co., Australia, has chartered a rain-making aircraft for two months from the Commonwealth Scientific and Industrial Research Organization.

A new Soviet tin deposit has been discovered in the Lake Khanka area, about 100 miles north of Vladivostok, according to the *Industrial and Economic Gazette*. A large tin mine has been opened and an ore-enrichment plant has been set up in the area. In the first week of January this year, an initial delivery of 1,000 tons of tin ore was made to the enrichment plant.

The Spanish mining concern, Union Espanole de Minas Metalicas, has applied for permission from the authorities to carry out prospecting work on 175 occurrences of lead ore in the neighbourhood of Navalanguilla, Province of Avila. In former years, a number of silver and lead mines were exploited in this area.

Neon-strip lighting has been installed along a section of underground roadway at the Kossuth Mine, Komlo, central Hungary, for about a third of a mile. Underground coal transport at the pit was mechanized last year.

A demand for a general 15 per cent increase in basic salaries for members of the Mine Officials and Salaried Staff Association was discussed at a meeting between M.O.S.S.A. and the Northern Rhodesia Chamber of Mines in Kitwe. The demand was rejected.

Vast new iron deposits, claimed to be sufficient to supply a large iron and steel works for many decades, have been discovered in Siberia, east of Lake Baikal, reports Tass, the Soviet news agency. Fluxes, coal, and other raw materials required for iron sheeting have also been found in the vicinity.

More than 500 scientific and economic reports on mineral technology and mineral industries, both domestic and foreign, are described in a new annual list of publications issued by the Bureau of Mines, United States Department of the Interior. It is obtainable from the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa. Annual lists of publications for 1954 and 1955 are also available from the same source.

The Tanganyika Government denied that the assets of Williamson Diamonds had been frozen, thus making it difficult for heirs and others to receive bequests. It also denied the suggestion that the British and Tanganyika Governments were planning joint control of Williamson Diamonds, and that negotiations to this effect had been going on for six months. Mr. G. du Toit, mine superintendent at Williamson's, has been recalled from leave in South Africa to act as general manager. Other departmental heads are continuing as before. The contract governing the sale of Williamson diamonds by the Central Selling Organization has still three years to run.

Several foreign firms are interested in exploiting the large coal deposits of El Cerrejon in north-eastern Colombia, some fifty miles south of the Caribbean coast, the initial investment being between \$22,000,000 and \$25,000,000. The Colombian Government is at present studying the possibility of tax exemptions and other privileges being granted to the foreign company that will obtain the contract. According to studies made by the Instituto de Fomento Industrial, there are proven reserves of 212,000,000 tons of coal.

M. Maurice Lenormand, a member of the French National Assembly, stated in Tokyo that New Caledonia hoped Japan would co-operate in the development of her mineral resources such as chrome and cobalt, as well as nickel. In particular, help is required to expand nickel-ore grading facilities. He also expressed the hope that Japan would import at least 600,000 tons of nickel ore annually to maintain New Caledonia's economic

stability. Japan imported about 700,000 tons in 1957.

The geological mapping of what is claimed to be the world's largest coal basin, along the River Lena in Yakutia, Eastern Siberia, will soon be completed. Mr. Pyotr Antropov, U.S.S.R. Minister for Geological Mineral Wealth, has stated that the Lena basin has a proved capacity of nearly 5,000,000,000,000 tons of coal. He added that there was reason to believe the actual deposits of coal in this area were some two and a half times greater than the rest of the world's known reserves.

Construction of the Berkeley Nuclear Power Station by A.E.I.—John Thompson and their Associates, Balfour Beatty and John Laing Ltd.—has now been in progress for a full year. As part of the work, two intake tunnels, each 1,000 ft. long, and the main access tunnel are being driven under compressed air in sandstone. The main access tunnel, scheduled for 600 ft., is now one-third completed. Compressed air for these tunnels is being derived from a Consolidated Pneumatic compressor installation, six T.B. single-stage units, one T.C.B. two-stage unit, and one T.B. two-stage unit being installed.

The main objectives for which the Phosphate Development Corporation of South Africa (Foscor) was established have been achieved, states the chairman, Dr. F. J. du Toit, in his annual report. Dr. du Toit said that Foscor had succeeded in producing a high-grade concentrate, from which a 19 per cent standard superphosphate was being successfully manufactured. Three phosphate quarries were at present being developed in the higher-grade foskorite. Good progress was being made with the development of a fourth quarry. These quarries had made available approximately 1,500,000 tons of ore, which made further development unnecessary for the present. Further geological surveys had confirmed the availability of large reserves of low-grade ore.

As part of the Bolivian Government's plan to reduce the high cost of mineral production and to cover costs, the Bolivian Mining Corporation is to close down the Bolsanegra mine, which is said to be uneconomic. It has also been announced that the Kami mine will in future mine only tin and cut out wolfram production. It is believed that, though these measures will cause labour troubles, they will benefit the country's economy under the stabilization plan. Meanwhile, the U.S. firm, National Lead, has approached Bolivia for permission to exploit the Matilde mine, which formerly belonged to the Hochschild enterprise.

Workable deposits of titanium and iron ores have been discovered on the small island of Lobos, Canary Islands, which lies between the islands of Lanzarote and Fuerteventura. The Spanish Ministry of Industries is reported to have granted prospecting licences covering the deposits.

High-quality emeralds have been found in the Belingwe Native Reserve, which is among the more inaccessible areas of Southern Rhodesia. The value of the discovery is still uncertain.

PERSONAL

Dr. R. A. Mackay has left on a series of professional visits to the Middle and Far East. Dr. G. A. Schnellmann has returned from Egypt. Mr. D. Simmons, of Mackay and Schnellmann, returned recently from Cuba and left immediately for Persia. Mr. W. G. Yuill, of Mackay and Schnellmann, has recently returned from Persia.

Jonkheer H. L. F. K. van Vredenburg, chief representative in the United Kingdom of the High Authority of the European Coal and Steel Community, relinquished his post on January 15. He is to return to The Hague in the service of the Netherlands Ministry of Foreign Affairs as the Director-General of a newly created Division for European Co-operation.

The following changes in the directorates of colliery companies have been announced by the Anglo American Corporation of South Africa, Ltd., group: Mr. K. C. Acutt was appointed a director of African and European Investment Co., Ltd., with Mr. C. P. Green as his alternate. Mr. A. E. Edge has withdrawn as alternate to Mr. T. Coulter on the board of the same company and Mr. D. B. Hoffe was appointed in his stead. Mr. A. E. Edge resigned as a director of Amalgamated Collieries of South Africa, Ltd. Mr. R. W. Grout, previously alternate to Mr. Edge, was appointed in his place. Mr. G. W. Pooley (British) has replaced Mr. A. L. A. Robb as alternate to Mr. M. W. Rush on the board of Natal Coal Exploration Co., Ltd. Mr. A. E. Edge has resigned as a director of South African Coal Estates (Witbank), Ltd. Mr. G. W. H. Rely has been appointed a director with Mr. R. W. Grout (formerly alternate to Mr. Edge) as his alternate. Mr. A. E. Edge resigned as a director of Springfield Collieries, Ltd. Mr. R. W. Grout, previously alternate to Mr. Edge, has been appointed in his stead.

Sir Gilbertson Smith has resigned from the boards of South Crofty Ltd. and Great Western Ores Ltd. Brigadier Henry Gilbertson Smith has been appointed a director of South Crofty Ltd.

Mr. Philip Emmet Taaffe O'Connor has been appointed a director of Premier Consolidated Oilfields, Ltd. Mr. O'Connor was appointed general manager of the company's oilfields in Trinidad as from January 1, 1958.

Mr. W. F. Talbot has been appointed a director of Uruwira Minerals, Ltd.

Mr. Ellmore C. Patterson, a vice-president of J. P. Morgan and Co. Inc., has been elected a director of the International Nickel Co. of Canada, Ltd.

Mr. Stanley Wickett has resigned from the boards of Ayer Hitam Tin Dredging, Ltd., and Sungei Besi Mines, Ltd. Mr. Harold Edgar Barranger has been appointed a director of Ayer Hitam Tin Dredging. Mr. Walter Vivian Douglas

has been appointed a director of Sungei Besi Mines.

Mr. Stanley Wickett has resigned from the boards of Tanjong Tin Dredging Ltd., and Kinta Tin Mines, Ltd. Mr. W. E. Hosking has joined the board of Tanjong Tin Dredging, Ltd.

Sir Richard Snedden has been appointed a director of Lake View and Star, Ltd., in place of Sir G. S. Harvie-Watt, Bart., who has resigned.

Grooved Secretaries, Ltd., have been appointed London secretaries to Petaling Tin, Ltd., in place of Mr. E. J. Jarvis, who has relinquished his office.

Mr. R. Rooke has been appointed by Barrow, Hepburn and Gale, Ltd., as chief technical adviser on conveyor belting and installations. Until recently, he was with the National Coal Board, North-Eastern Division, No. 3 Area. The company is now in a position to offer a complete technical advisory service to customers on all matters relating to plastic and rubber conveyor belting.

Mr. John Oldham, chairman of Oldham and Son Ltd., flew from London Airport on January 14 in a Britannia on another visit to Africa. This will be his fourth visit to the company's African interests in less than six years. He expects to be in Africa for about six weeks, during which time he will visit Oldham and Son (Africa) Ltd. at Johannesburg. He will also make an extended visit to Oldham and Son (Central Africa) Ltd., which has been established in Salisbury to serve the requirements of the Central African Federation.

Mr. R. O'Brien has been appointed director and general manager of Head Wrightson Colliery Engineering Ltd.

Mr. Jack Page has been appointed general manager of the Panorama group of companies.

Mr. William Blackie, president of the Foreign Trade Group of Caterpillar Tractor Co., Peoria, Illinois, and an executive vice-president of the company, has been elected to fill one of two vacancies on the board. Mr. Blackie is a former chairman, and still a member of the board of Caterpillar Tractor Co. Ltd., the American company's British organization.

From Monday, January 20, the telephone numbers for the three companies of the Distillers Plastics Group will be as follows: British Geon Ltd., Hyde Park 7321; British Resin Products Ltd. and Distrene Ltd., Hyde Park 0151.

A new Department for Statistical Services is to be set up by the National Coal Board. The first director will be Dr. E. H. Sealy, at present a senior partner in Urwick Orr and Partners, management consultants. He will assume his duties on February 1.

CONFERENCES AND EXHIBITIONS

The Institution of Mining and Metallurgy will hold an International Congress on Mineral Processing in London from April 6 to 9, 1960. It is proposed that the papers to be discussed should cover fundamental and applied research and development in the fields of mineral dressing, chemical processing, roasting,

cyanidation, leaching and solvent extraction, but not smelting.

The next Mining Qualifications Board examination for First- and Second-Class Certificates of Competency as managers and under-managers of mines will be held on May 20, 21 and 22, 1958, at Glasgow, Sunderland, Doncaster, Wigan, Cardiff and Stoke-on-Trent. Candidates for Limited Certificates of Competency as managers and under-managers of stratified ironstone mines will attend at the Doncaster centre. The Mining Legislation examinations for Mechanical Engineer's Certificates, Mechanic's Certificates Class I and Electrician's Certificates Class I will be held at the foregoing centres on May 21, 1958, and the oral and practical examinations in July, 1958. Intending candidates should apply after February 25 for the necessary forms, addressing letters to the secretary, Mining Qualifications Board, Ministry of Power, Thames House South, Millbank, London, S.W.1.

The ninth annual lecture of the Plastics Institute will be delivered by Dr. C. G. Addingley, on Thursday, March 13, 1958, in the Chemistry Hall, Leeds University, at 6.30 p.m. The subject will be "Plastics in Conveyor Belting, with Special Reference to the Mines".

The McIntyre Research Foundation will hold its annual conference on "Silicosis and other Industrial Pulmonary Diseases", at the King Edward Hotel, Toronto, on January 27, 28 and 29, 1958.

The Metal Physics Committee of the Institute of Metals is organizing a one-day symposium on "Metallurgical Aspects of Semi-Conductors", to be held on February 25, 1958, at the College of Technology, Gosta Green, Birmingham. A number of short papers will be presented. In conjunction with the meeting, an exhibition is being arranged at the College by the Royal Radar Establishment, Great Malvern.

As a result of a recent survey by the Federation of British Industries of trade associations' views on the future of trade fairs in Britain, the F.B.I. Grand Council has approved the appointment of a committee of inquiry, which will consider present exhibition facilities in the United Kingdom.

The 1958 National Chemical Exposition, sponsored by the Chicago section of the American Chemical Society, will be held at the International Amphitheatre, Chicago, from September 9 to 12, 1958, concurrently with the 134th national meeting of the American Chemical Society. United Kingdom firms interested in exhibiting should write to Mr. James J. Doheny, manager, National Chemical Exposition, 86 East Randolph Street, Chicago 1, Illinois.

CONTRACTS AND TENDERS

Tenders will be received up to 7/2/58 by the General Manager, the Singareni Collieries Co. Ltd., P.O. Kothagudum Collieries, Andhra Pradesh, India, for an aerial ropeway plant for sand stowing, with suitable sand gathering and pumping equipments. The aerial ropeway is to be approximately 7 miles long and of 150 tons per hour capacity. B.O.T. Ref.: ESB/870/58. Telephone enquiries to Chancery 4411, extension 738 or 771.

Machinery and Equipment

Winding in Two Hemispheres

A new world record in shaft-sinking has been claimed in South Africa at the No. 2 shaft of Free State Saaiplaas G.M. Co. The record was achieved during the first thirty days of regular sinking, when twenty-two Europeans and a local labour force of 240 worked throughout on a three-shift basis. In that time the shaft was sunk from 199 ft. to 1,033 ft.—a depth of 834 ft.—and lined with concrete for 810 ft. This sinking exceeds by 71 ft. the previous record of 763 ft. established at the Monarch shaft of West Rand Consolidated in September, 1955.

The Saaiplaas shaft has an excavated diameter of 29 ft. 6 in., and is concreted to a diameter of 27 ft. 6 in. It is believed that this is the largest diameter shaft in South Africa, if not in the world. The total weight of rock excavated during the thirty days was 51,900 tons.

The 5,200-h.p. winder used in achieving this record was supplied by Metropolitan-Vickers Electrical Co., Ltd., one of the four supplied by the company to New Consolidated Gold Fields. The mechanical equipment was manufactured by Vickers-Armstrongs (Engineers), Ltd.

Further news tells that in the United Kingdom two orders covering four 2,500-h.p. electric winders, and approaching £500,000 in value, were placed recently with Metropolitan-Vickers Electrical Co., Ltd., by the North-Western Division of the N.C.B. They are of particular interest because they form an important part of the N.C.B.'s plan to exploit Lancashire coal reserves previously regarded as unobtainable.

Two of the winders will be installed at Agercroft Colliery, which is being reopened and modernized; the other two are for a new mine, the first in Lancashire for over thirty years, which is being sunk at Parkside, near St. Helens. Both collieries will together eventually produce over 2,000,000 tons of coal a year. The new winders will be of the four-rope tower-mounted friction type, and will be driven by d.c. motors supplied from mercury arc converters.

At each colliery one winder will operate with a skip and counterweight, and the other will operate with a cage and counterweight. The mechanical equipment for each winder will be manufac-

tured by Vickers-Armstrongs (Engineers), Ltd., and will consist of a four-rope friction wheel, 12 ft. in diameter, driven through single-reduction, double-helical gears supplied by Turbine Gears, Ltd.

The British Thomson-Houston Co., as main contractor, has received a large order from the N.C.B., North-Eastern Division, for four mine winder equipments and associated plant to be installed at a new colliery at Kellingley, North Yorkshire. Delivery is due to commence before the end of 1959.

The winders, which will be of the friction type, are of particular interest, for they will be the first sinking winders in Great Britain to be tower-mounted. There will be two shafts (upcast and downcast) at this colliery, and two winders will be employed in each shaft. The downcast winders, which will incorporate cages and counterweights and will normally carry men and materials, will each be driven by a B.T.H. 1,100-h.p. 11,000-volt slipring induction motor with reduction gearing. Fully automatic control will be provided. The dynamic braking equipment will include B.T.H. germanium power rectifiers and power magnetasts.

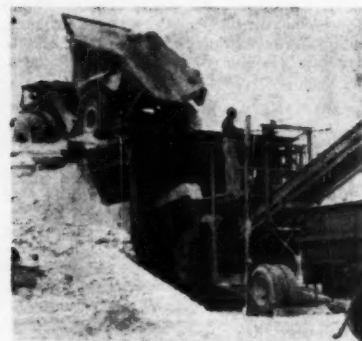
The two upcast shaft winders, which will be used for coal-raising, will incorporate skips and counterweights, and will in this case each be driven by two 1,100-h.p. slipring induction motors with common gearing. Again, dynamic braking equipment and a fully automatic control system will be provided.

A total of seven identical winder motors will be supplied. The mechanical parts for the winders will be supplied by M. B. Wild.

TR-260 DUMPERS

The Allis-Chalmers rear-dump motor wagon, model TR-260 (11-15 cu. yd. capacity) is a fast, rugged hauling unit with a high horse-power-to-gross-weight ratio. It uses the same tractor unit as the model TS-260 motor scraper, being powered by an Allis-Chalmers six-cylinder four-stroke engine which gives 200 h.p. at 2,000 r.p.m.

Some notable features of the TR-260



are that it has fast, positive 90 deg. steering to left or right, 70 deg. maximum dumping angle, synchronized four-wheel air brakes with automatic emergency control and 21 in. ground clearance.

The Williston Shell Rock Co., of Newbury, U.S., use four TR-260 motor wagons which, they have found, are more economical and haul more rock daily than the six ten-ton trucks which they formerly used. Each day these four units average sixty-four trips each during a nine and a half-hour shift over a half-mile one-way haul with a steep uphill gradient to the unloading hopper. Combined daily production is approximately 4,560 tons of crushed rock, which is used primarily for road construction. In addition to hauling rock, the TR-260s are used for removing overburden and waste material from the mine.

THE LANGUAGE FRONTIER

An "international language" for industry has been made possible by the new G.B.-Bell and Howell magnetic/optical film projector, which enables high-quality sound films to be produced in any tongue, complete with sound effects, quickly and cheaply. To any reader who has mined beyond the shores of the British Isles, the value of the equipment to the mining industry must be immediately obvious. It means also that British firms, through their own sales-promotion films, can speak direct to any country in the world without the need of vast technical resources.

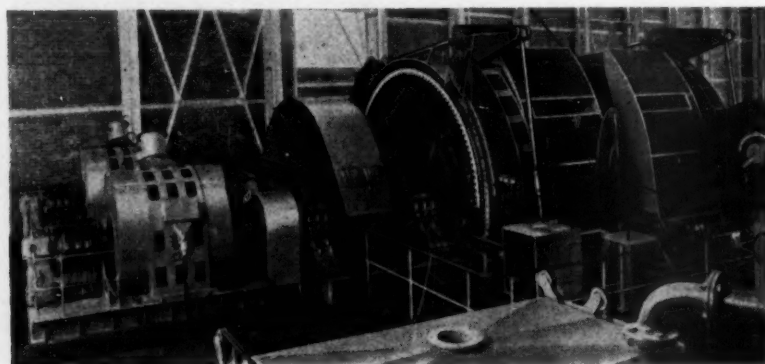
The system of recording a commentary on magnetic striped 16 mm. film, wiping it off and substituting another in a different language, is already widely used. It has one drawback—essential sound effects are obliterated at the same time as the commentary.

With the new Model 640 projector, the commentary can be changed without disturbing the background noises. This is done by recording the background noises direct from the optical sound-track on to the magnetic track and adding the commentary in whatever language necessary.

The projector weighs 37 lb. 6 oz. Its dimensions are 16½ in. by 13½ in. by 10½ in.

Above: An Allis-Chalmers TR-260 rear dumper in operation at the Florida site

Below: The Metropolitan-Vickers 5,200 h.p. winder at the Saaiplaas No. 2 Shaft, used in achieving the shaft-sinking record



Metals and Minerals

Quicksilver Rises Again

The rises in the London ex-warehouse price for quicksilver from £69 per flask to £70, and subsequently £71, came as no surprise, since the market has recently seemed poised for a modest recovery. Supplies of physical metal on the spot in the U.K. have been considerably reduced and a further upward adjustment in the price before long is regarded as by no means impossible. Most of the Mexican quicksilver in the U.K. appears to have been absorbed, and offers from that country are now on a considerably reduced scale.

Both Spain and Italy are still at least £10 above London, but it remains to be seen how long they will be prepared to remain uncompetitive, while at the same time presumably putting certain quantities into stock. The next month or two could well be a testing time in that, unless prices move up, Spanish and Italian prices could come down.

In this connection, it will be interesting to see how far Italy's selling policy will be influenced by the joint sales office recently set up by the two major producers, Monte Amiata Co. and the Seile Mining Co. Two very small Italian producers, Argos and Siam, are also believed to be participants in this venture. The office, which has been functioning since the beginning of this year, is called *Mercurio Italiano*.

It will be recalled that a similar group was formed not long after the dissolution of *Mercurio Europeo*, covering both Spanish and Italian producers, at the end of 1949, but it broke up after a year or two. Doubtless the constitution of *Mercurio Italiano* springs from the mutual desire of producers to strengthen their position in the light of prevailing market conditions. It is expected that the group will be functioning towards the end of January.

On January 14, the price of quicksilver in New York was reduced to \$223-\$228 per flask against \$225-\$230 previously.

U.S. STOCKPILE REQUIREMENTS

The U.S. Office of Defence Mobilization has announced that the inventory of materials in the national stockpile on June 30, 1957, had a value of \$6,200,000 at market prices. In its report to Congress on the stockpiling programme covering the first six months of last year, O.D.M. said the inventory showed a drop in value from that held on December 31, 1956, but this was due principally to declines in market prices during January-June, 1957.

O.D.M. officials have stated that about \$300,000,000 would be required to fill requirements for the twelve materials for which stockpile targets had not yet been realized. These materials are: bauxite, crude Jamaica type; small diamond dies; jewel-bearing magnesium; manganese ore, metallurgical grade; manganese chemical grade type B ore; mica muscovite black stained A and B; mica muscovite film; selenium; platinum; palladium group metals; crude silicon carbide; amosite asbestos.

A citizens' advisory committee is now concluding a review of stockpile requirements and policy in view of nuclear warfare requirements, and this report is expected to be submitted to O.D.M. during January.

The U.S. Government itself is also making a review of stockpile objectives that might result from changes in strategic planning concepts, with particular reference to the changes brought about by developments in the ballistic missile and nuclear fields.

U.K. DISPOSAL OF CADMIUM

The U.K. Board of Trade has announced its intention of disposing of 12½ tons of cadmium metal in rod form, which represents the final balance of the stockpile. This material is being offered immediately for sale by open tender for delivery before the end of March, 1958.

Cadmium has been in plentiful supply for several months, and a few days ago a second reduction in the U.K. price was announced, bringing it down to 10s. a lb. against 12s. at the beginning of 1957.

World production of cadmium has been steadily rising, reaching a total of 8,337 tons in 1956 compared with 7,076 tons in 1954. In the first half of last year, it amounted to 4,339 tons. Stocks of cadmium in the U.K. have also increased, being 283.01 tons at the end of November, 1957, compared with 192.26 tons and 99.78 tons at the end of 1956 and 1954 respectively. Consumption in the U.K. has shown a moderate increase, totalling 878.60 tons in the first eleven months of 1957, against 839.05 tons in the corresponding period of the previous year.

Last month, the U.S. selling price for commercial sticks was cut from \$1.70 to the current figure of \$1.55 a lb. delivered in wholesale quantities. The cut was attributed to severe competition from abroad, resulting in offers of foreign cadmium at appreciable price discounts in the U.S. domestic market.

UNSETTLED MANGANESE MARKET

The undertone of the manganese ore shipment market remains unsettled. While easing freights have been largely responsible for the downward trend, prevailing market conditions are also thought to have been a factor. More ore seems to be on offer at the moment than buyers want. Unless demand generally improves during the coming weeks, the possibility of a further easing in price cannot be overlooked.

So far as the U.K. is concerned, buying for 1958 requirements has virtually been completed. In this connection, it is believed that the quantity of ore to be bought from Russia will be less than in 1957, but contracts have not yet been quite finalized. Further afield, reduced operations in the steel industry might conceivably lead to smaller ore pur-

chases by the U.S. and Japan. Stocks of ore in various countries are also reported to be good. U.K. stocks in particular are understood to be the highest for a number of years.

ALUMINIUM REDUCTION FACILITIES

According to the annual survey by *American Metal Market*, the North American aluminium industry in 1957 slowed down the tempo of its continuing programme for the expansion of primary production facilities. In fact, last year saw the smallest amount of construction of new primary production facilities since the emergency in Korea arose. Primary aluminium reduction capacity in the U.S. was increased by 63,500 a.tons, raising the U.S. potential to the new peak figure of 1,839,000 tons, as compared with operable capacity amounting to 1,775,000 tons.

An additional 45,000 tons of primary production was placed in operation in Canada during the year, increasing the potential for that country to 821,000 tons, and that of North America to 2,660,000 tons. Construction work is in various stages in both countries. When completed, it will raise installed capacity by another 765,500 tons in the U.S. and by 135,000 tons in Canada, bringing the ultimate combined total to 3,560,500 tons.

With sufficient operable capacity now in place to take care of the foreseeable demands for the next year or so, the industry is proceeding with construction schedules at a more leisurely pace. In the U.S. this is being accomplished by a phasing out of operations over a longer period.

In this connection, it is noteworthy that Alcoa has decided temporarily to halt construction of three projects in its expansion programme. The biggest facility on which work is being stopped is the \$80,000,000 smelter, which was to have been completed late this year in Indiana. The company emphasizes that the new facilities will eventually be completed, but not until business conditions warrant it.

The U.K. Board of Trade has given notice that it is considering an application by Alcan for the imposition, under the Customs Duties (Dumping and Subsidies) Act, 1957, of an anti-dumping duty on imports into the U.K. of unwrought aluminium originating in Russia. There have been reports of sales of Russian metal in the U.K. at as little as £181 a ton, which compares with the basic Canadian quotation of £197. Representations by interested parties should be addressed in writing not later than January 24, 1958, to the Board of Trade, Tariff Division, Horse Guards Avenue, London, S.W.1.

The Norwegian aluminium industry was operating almost at capacity in 1957, and production for the year was expected to total some 95,000 tons, states a report by A.S. Norsk Aluminium. By 1961, the country's annual capacity for this metal

will be about 185,000 tons, following the expansion of existing plants and the commissioning of new ones.

U.S. TITANIUM SHIPMENTS

That the setback in the U.S. titanium industry, referred to in this column last week, has been even greater than was generally realized, seems indicated by estimates prepared by the Miscellaneous Metals and Minerals Division of the Business and Defence Services Administration. The Division calculates that in the current quarter of this year shipments of titanium mill products will total less than 200 s.tons, against 2,248 s.tons in the first quarter of 1957. B.D.S.A. adds that indications point to shipments rising to a level of 250 to 300 s.tons monthly during the second half of 1958, but even this would be in sharp contrast to the peak monthly average of 750 s.tons attained in the first quarter of 1957, and would represent only about 25 per cent of the industry's capacity.

A welcome development is the award of a \$1,388,044 contract to the Convair division of the General Dynamics Corporation to investigate the use of the

newer titanium alloys in future supersonic aircraft and missiles. The 18-month study programme is to be started early this year, the prime objective being to determine the adaptability of titanium alloys to the design, fabrication and construction of future weapons systems.

ANTIMONY ORE

A further softening in the antimony ore shipment market is reflected by the recent decline in the price of basis 60 per cent material to 19s. 6d.-20s. 6d. per l.ton unit c.i.f. Europe, compared with the range of 20s.-21s. prevailing for some weeks previously. A certain amount of Bolivian ore is reported to be still available.

PLATINUM WEAKENS FURTHER

The platinum market remains very quiet and a further weakening would not be unexpected. Imported platinum is now quoted at £26 5s. to £26 15s. Palladium continues to be quoted at £7 10s. in London, but it is understood that on the Continent the price is as low as £6 5s.

questionable how long the present large cut in the export quota of producing countries can be maintained in view of the overall economics of the various countries.

If, in fact, some relaxation has to be made for the second quarter of this year, then those who expect a lower price may prove to be right. Yet the majority feel that the present quota can be maintained for six months, in which case the shortage of tin which has been predicted will probably materialize with a consequent rise in the price level to £780 per ton to enable the buffer stock manager to liquidate some of his stocks.

The main difficulty at the moment is the reluctance of consumers everywhere to purchase metal, and it has become obvious that estimates of stocks held by consumers erred very much on the low side, as now some dealers are saying that consumers can stay out of the market until the second quarter of the year. If this, indeed, should prove to be correct, then one can envisage a certain amount of anxiety on the part of the buffer pool manager as to whether he will be able to maintain a price of £730 for cash metal. On Thursday morning the Eastern price was equivalent to £720½ per ton c.i.f. Europe.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

Over the last week markets have been dominated by events in the copper world and by speculation as to the future of the International Tin Agreement. On balance, copper prices show a marked decline with a weak undertone, the price of three months' tin is considerably lower, whilst the prices of lead and zinc are a shade lower.

TOO LATE AND TOO LITTLE ?

On Monday, January 13, news was received in London that the Chilean authorities were recommending a 10 per cent cut in the American-owned copper companies, but it was left in doubt as to whether this cut would take place automatically or whether it was dependent upon similar action being taken by various other world producers. A month ago such an announcement would have caused a very firm copper market in London but in the event, owing to its vague terms and a statement to the effect that it was not expected that this action would cause any up-turn in price, the London market reaction on a price basis was practically nil.

In the afternoon of the same day it became known that the movement to reduce the U.S. producers' price had begun, and that simultaneously the customs smelter price had been reduced. This news gave rise to a break in prices to a new low level. The American producer price is now 25 c. per lb. and the customs smelter price 24½ c. per lb. with some doubt being expressed as to whether the latter can hold owing to a distinct weakness in the scrap metal market in the States.

It is extremely difficult to be able to report on any consensus of market opinion on the possible future tendencies as almost everyone has a different idea. The optimists point out that any reduction

in output is a good thing and that it is probable that the Chilean action may have the result of causing other producers to introduce cutbacks in production. Union Minière has, in fact, announced that its copper output for 1958 is to be reduced to 90 per cent of the 1956 total. In 1956 the company produced 247,000 l.tons of copper. This cut is additional to those announced by Union Minière towards the end of last year. On the other hand, the pessimists point out that the Chilean announcement had no effect on the price and that the unsold stocks now held by producers have been estimated by the Chilean authority at something in excess of 300,000 tons.

All that can be said at the moment is that there is every prospect of production being curtailed, but it seems doubtful whether a further reduction in consumption will not go a long way to nullify this. The London market itself has produced a tendency for the contango to narrow in spite of stocks still being at the very high level of 19,904 tons.

CONSUMERS RELUCTANT TO PURCHASE TIN

Last week has seen an appreciable fall in the Singapore price of tin, which has resulted in the establishment of a back-wardation on the London market. This in turn has given rise to expressions of opinion that the buffer stock manager will not be able to maintain the floor price of £730 per ton.

It is true that dealings in cash metal have remained at a high rate and also that stocks in official warehouses grew by 1,594 tons to a total of 14,795 tons at the beginning of this week. In spite of some doubters, it is still the opinion of the majority that the floor price can be maintained in the immediate future, but it is

LEAD-ZINC LITTLE CHANGED

The lead and zinc markets have again been featureless. With the approach of the date on which the Tariff Commission is likely to make its report, sales of metal to the States have shown a marked decline.

The prices, however, have remained steady, as consumer demand in Europe is still satisfactory and in the case of zinc some European smelters are not willing to sell their metal at the present low price. If it were not for the fact that monthly intakes into the American stock-pile are likely to stop very shortly, it could be said that the next movement in the prices should be in an upward direction. Bearing in mind this possibility, coupled with an increase in the American import duties, it seems more probable that prices will have to give way further before recovering.

At best, one can say that of all four metals, the price of zinc now stands definitely below the cost of production of sufficient tonnage to satisfy demand and, therefore, whatever happens in the meantime, this price must be higher in the foreseeable future.

Closing prices are as follows :

	Jan. 9		Jan. 16	
	Buyers	Sellers	Buyers	Sellers
COPPER				
Cash ..	£175½	£176	£172½	£172½
Three months ..	£179	£179½	£174½	£175
Settlement ..	£176		£172½	
Week's turnover	7,150 tons		8,850 tons	
LEAD				
Current ½ month	£72½	£72½	£70½	£71
Three months ..	£72½	£72½	£71½	£71½
Week's turnover	1,700 tons		3,725 tons	
TIN				
Cash ..	£730	£730½	£730	£730½
Three months ..	£731	£732	£713	£714
Settlement ..	£730½		£730½	
Week's turnover	1,610 tons		2,810 tons	
ZINC				
Current ½ month	£62½	£63½	£61½	£61½
Three months ..	£62½	£62½	£60½	£61
Week's turnover	5,625 tons		7,375 tons	

London Metal and Ore Prices appear on page 78.

Mining Finance

Mr. Harrod Dares to Predict

"I dare to predict that whether post-war attempts to resuscitate multi-lateral trade bear fruit in future and lead to greater development of it, or are followed by a retrograde step to bilateralism, barter and totalitarian planning, depends mainly on whether the U.S. Congress has the good sense to raise the dollar price of gold by a large amount."

Mr. Roy Harrod may well have thought it wise to "do as the Romans" on this occasion, as he was addressing the Economic Society of South Africa. Nevertheless, his further remarks will not be lacking in support. Raising the price of gold was a matter of common sense overcoming ill-defined prejudices, he said. If multi-lateral trade was to expand, and not be hampered by the continuous reimposition of restrictions, the value of gold stocks and of current gold output would have to be increased. No one could claim that any substitute for gold had been devised or was in prospect of being devised.

Mr. Harrod's thesis is, of course, incontrovertible. Signs have multiplied apace in the past year that trade may well be slipping into what some call bilateralism

and barter, and others call chaos. The strangest feature of the whole gold price controversy is that there is no controversy in any real sense—the manifold arguments for a rise are met year after year with nothing more than ill-conceived pre-judgments. Mr. Harrod is the Nuffield reader in economics at Oxford. One wonders how many more voices of his calibre are needed to sing the same tune before Congress realizes that what is now a song of supplication may soon be a dirge for prosperity.

DECEMBER KAFFIR QUARTERLIES

The December quarterly reports from Union Corporation, Anglo American Corporation of South Africa and Riebeeck Gold Mining Co. in the Anglo-Transvaal group have been published this week. In general, the results announced so far have been good without being exciting. Nevertheless, the newer mines continue for the most part to maintain their steady progress.

St. Helena, the pioneer mine of the Orange Free State, announced payability

of 50 per cent with average values equivalent to 496 in. dwt. This is the best result achieved from underground development since the March quarter of 1954. At the end of December last the company's new No. 2 shaft reached its final depth of 5,528 ft. and 2,010 ft. of station cutting had been achieved. It may be recalled that in an ore pass some 80 ft. from this shaft, the Basal Reef was intersected last June and yielded 5,904 in. dwt. With regard to the company's ore reserves the net outcome of operations during the year was to leave them exactly the same as they were a year ago both in tonnage and gold values. Marievale reported higher ore reserves to the extent of 200,000 tons obtained from development on the Kimberley Reef.

In the Anglo American Corporation group the results from Welkom showed up well with payability up 8 points to 75 per cent and values more than correspondingly higher at 470 in. dwt., against 384 in. dwt. in September. Welkom's uranium values also improved, advancing to 22.04 in. lb., against 20.57 in. lb. in the September three months. Free State Geduld was somewhat disappointing in that values obtained in the No. 1 shaft area declined to 678 in. dwt., compared with 743 in. dwt. Similarly, values from the No. 2 shaft area fell to 1,519 in. dwt., against 1,824 in. dwt. Overall, the percentage payability dropped from 98 per cent in the September period to 93 per cent. Western Holdings also returned lower values—1,169 in. dwt., against 1,439 in. dwt.—but overall payability rose four points to 92 per cent. Loraine confirmed the declining trend apparent from the annual report reviewed in these columns in last week's issue. Payability was 26 per cent with values of 268 in. dwt., and of the 385 ft. sampled on the Rainbow Reef last quarter, only 42 per cent proved payable, averaging 296 in. dwt. President Steyn announced sharply improved uranium values, 54.75 in. lb. comparing with 35.28 in. lb. in the September period. Of the other companies in the group, payability and values achieved by President Brand were both noticeably better, while Vaal Reefs made the important announcement that work has begun on expanding the capacity of the company's reduction plant to 100,000 tons a month.

Riebeeck, which is to exploit the Rainbow Reefs in the Van den Heversrust area of the Orange Free State, announced that total capital expenditure to date amounted to nearly £2,000,000. The company's No. 1 shaft has been sunk to 121 ft. below the collar and concreted down to 105 ft. However, pre-cementation measures are being carried out at a depth of around 4,300 ft.

O.F.S. COMPANIES' TAX POSITION

The six Anglo American mines in the O.F.S. broke new ground last week by announcing their estimated losses for tax purposes. This figure represents the amount of capital expenditure remaining to be amortized at September 30 last, and thus gives some indication, when considered in conjunction with future profits and capital expenditure, of the length of

LONDON MARKET HIGHLIGHTS

Mining share markets continued to edge lower in the week to January 15. Once again there was no real selling pressure, but in the absence of any buying support, prices easily drifted in the thin trading conditions.

Base-metal shares, understandably enough, gave ground in sympathy with the falling metal prices and the growing fear of a more severe recession in the U.S. economy than official observers there pretend to see. Surprisingly, in view of this, demand for gold shares more or less dried up and was replaced by a trickle of selling.

Several reasons were advanced for the lack of interest in gold shares. There was, it was said, the basic mistrust of the gold market, the summer holiday season at the Cape, a re-appearance of articles on South Africa with the inevitable focus on racial problems and also the nearness of the South African election, all combining to deter buying interest.

Even the onset of the December quarterly reports failed to stimulate much inquiry. In fact, news of the best development values at St. Helena since the March quarter of 1954 did no more than encourage some profit-taking which lowered the shares a few pence to 36s. 6d. Free State Geduld new shares wilted to their lowest yet of 2s. 7½d. premium and the "old" fell below 80s. at one time. "Of-sits" dropped 2s. 3d. to 56s. and many smaller losses were scattered over price lists.

One of the few firm spots was in the diamond market where steady investment support, prompted by consideration of the company's big non-diamond interests, lifted De Beers to 87s. 6d. "Casts" im-

proved to 11s. 3d. on news of their qualification as an Overseas Trade Corporation and consequent tax savings.

The sharp reduction to 25 c. per lb. in U.S. copper producers' prices and its reflection on the London Metal Exchange quotation, depressed copper share prices even further. Dealings started in the Messina offshoot, M.T.D. (Mangula), but in the light of the poor response to the issue there was little enthusiasm and the shares after remaining at their issue price of par (5s.) later eased to 4s. 10½d. Messina shares dropped 9s. over the week to 67s. 6d., the options falling to only 28s. 9d.

Tins once more were allowed to droop in a quiet market. Worries about the effect on profits of quota restrictions were added to by the fall below the support level price in forward tin. There were also new doubts as to how much longer the buffer stock manager's funds can stand the strain of continued purchases of cash metal. Lead-zincs also lost ground, a feature being the setback in Lake George to the lowest for many years of 3s. 1½d.

Two small features, both in Miscellaneous Golds, helped to relieve the otherwise pervading gloom. One was the steady Australian buying of Lake View and Star which raised them to 21s. 3d. and the other was the resurgence of dividend hopes in Ashanti. Profits at Ashanti are running at a high level and will be further enhanced by the commissioning of the new Eaton Turner shaft. The chairman has already forecast a final dividend of not less than 8d. per share. In view of the fact that 1957 completed Ashanti's diamond jubilee, hopes were that a higher final will be forthcoming and the shares improved to 13s. 9d.

(1) Mine	(2) Assessed Loss £000	(3) Est. 1958 Cap. Exp. £000	(4) 1957 Working Profit £000	(5) (2) divided by (4) less (3)
F. S. Geduld	16,903	850	1,819	17.4
Lorraine	14,917	300	221	—
P. Brand	3,411	2,150	5,246	1.1
P. Steyn	11,780	700	2,849	5.5
Welkom	15,901	1,150	652	—
W. Holdings	6,778	1,850	3,678	3.7

the tax-free holiday remaining to the company. The table above attempts to evaluate the position from a common standpoint. The method is to deduct from the reported earnings for 1956-57 the amount which it is estimated will be spent on capital account during the coming financial year. This is then divided into the mine's estimated loss, giving a result which may be expressed as the number of years before tax would become payable if profits were to continue at the 1956-57 rate and capital expenditure at the 1957-58 rate. No estimate is possible in the cases of Lorraine and Welkom, since, at both properties, capital expenditure is not fully covered by profits. It should be remembered that in all cases the table will err on the side of optimism, as the profits of all six mines are still expanding.

Statements by the chairman of the six companies begin opposite.

CASTS AN O.T.C.

Arrangements have been completed which enable Consolidated African Selection Trust and its wholly-owned subsidiary, Sierra Leone Selection Trust, to qualify as Overseas Trade Corporations and the Board of Inland Revenue has now intimated that both companies are potentially regarded as such with effect

from January 1, 1958.

This will result in a reduction in both companies' liability to United Kingdom tax. First there will be an initial and non-recurring benefit estimated at £290,000 which represents one-quarter of the United Kingdom income tax provided on the mining profits for the year to June 30, 1956, and the whole of the United Kingdom income tax reserved on the mining profits for the year ended June 30, 1957.

Secondly, it is expected that a future saving will arise annually. As O.T.C.s the companies will not pay any U.K. profits tax on their trading profits and they will pay U.K. income tax only on the gross amount of those profits paid out as dividends. The taxes payable on non-trading profits will be unaffected by the change in status.

In future, dividends paid by Casts will be apportioned between trading profits and non-trading profits. That part of the dividends which is paid out of trading profits will no longer be regarded as franked investment income for profits tax purposes. It is, however, expected that a credit will be available to corporate shareholders against their profits tax liabilities in respect of the excess of the overseas taxes paid by the companies on their trading profits over the United Kingdom income tax on those profits.

... BUT SOME MINES ARE MORE EQUAL THAN OTHERS

The table below shows the impact of the present tin quota restrictions on some of the more important Malayan producers. The first column shows the authorized export quota for each mine, while in the second column this is compared with the average quarterly production in the company's last complete financial year. One is immediately struck by the disparity of impact between the companies, ranging from a cut of 71 per cent in the case of Larut to nil for Ayer Hitam, Berjuntai and Southern Malayan. In fact, under their quotas, these three mines could actually increase their output to a small extent. It will be remembered that the method used for allocating quotas was to take the average output for the years 1953-57 and reduce that by approximately 37½ per cent.

Mine	Quota in First Period (Tons)	% Cut on Actual Output
Ampat	199	28
Ayer Hitam	168	0
Berjuntai	287	0
Kampong Lanjut	184	4
Kepong	53	28
Kramat	63	45
Kuala Kampur	284	44
Larut	70	71
Lower Perak	291	33
Malayan	377	29
Pahang	405	38
Petaling	249	12
Rantau	124	46
S. Kinta	844	15
S. Malayan	586	0
S. Tronoh	132	28

It must be borne in mind, too, that all the quotas so far announced are provisional, and are subject to appeal.

LONDON METAL AND ORE PRICES, JAN. 16, 1958

METAL PRICES

Aluminium, 99.5%, £197 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) basis 19s. 6d./20s. 6d. nom. per unit, c.i.f.
Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 10s. 0d. lb.
Cerium (99% net), £13 18s. lb. delivered U.K.
Chromium, Cr. 99% 7s. 2d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 3s. 4d. per gram
Gold, 249s. 0½d.

Iridium, £25/£28 10s. oz. nom.
Lanthanum (98/99%) 15s. per gram.
Manganese Metal (96%-98%) £310
Magnesium, 2s. 5½d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £25/32 oz. nom.
Osmiridium, nom.
Palladium, £7 10s. oz.
Platinum U.K. and Empire Refined £28/10 oz.
Imported £26 5s./£26 15s. nom.
Quicksilver, £71 0s. ex-warehouse
Rhodium, £42/£45 oz.
Ruthenium, £18/£20 oz. nom.
Selenium, 53s. 6d. per lb.
Silver, 77d. f. oz. spot and 76½d. f.d.
Tellurium, 15s. 16s. lb.

ORES AND OXIDES

Bismuth	30% 5s. 0d. lb. c.i.f.
Chromes Ore—	20% 3s. 3d. lb. c.i.f.
Rhodesian Metallurgical (semifriable) 48%	£17 5s. 0d. per ton c.i.f.
Hard Lumpy 45%	£18 0s. 0d. per ton c.i.f.
Refractory 40%	£12 5s. 0d. per ton c.i.f.
Smalls 44%	£16 5s. 0d. per ton c.i.f.
Baluchistan 48%	£12 0s. 0d. per ton f.o.b. nom.
Columbite, 65% combined oxides, high grade	
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF ₂)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li ₂ O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Lepidolite min. 3½% Li ₂ O	47s. 6d./52s. 6d. per unit f.o.b. Beira
Amblygonite basis 7% Li ₂ O	£26 5s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£22 0s. d/d
Manganese Ore Indian—	
Europe (46%-48%) basis 77s. 6d. freight	nom.
Manganese Ore (43%-45%)	nom.
Manganese Ore (38%-40%)	nom. (including duty)
Molybdenite (85% basis)	8s. 5d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO ₂ (prompt delivery)	£41/£42 per ton c.i.f. Aust'n.
Ilmenite 52/54% TiO ₂	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	90s. 0d./95s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 90-95% V ₂ O ₅	£10 per unit c.i.f.
Zircon Sand (Australian) (63-66% ZrO ₂)	£16 per ton c.i.f.

Westminster Bank Earnings Down.—In common with all but one of the "Big Five" banks, the Westminster Bank reports lower earnings in 1957. However, as forecast, the dividend on the new "B" shares is improved to make an equivalent total distribution for the year of 4s. 6d. against 4s. last year. Figures are: Net profit 1956, £1,865,050; 1957, £1,852,481. Appropriations to reserve 1956, £800,000; 1957, £800,000. Dividends 1956, £974,823; 1957, £1,076,468.

The Last Days of Loloma.—Loloma (Fiji) Gold Mines made a net profit of £97,157 in the year ended June 30, 1957, compared with £100,836 last year. Only about 4,500 tons remain to be milled at the mine, but Loloma has built up a considerable portfolio of selected Australian industrials and mines, and is also participating in exploration in the continent.

Young PROSPECTING ENGINEER required by large

alluvial diamond mining company. Honours degree in Mining Engineering or Mining Geology at recognized School of Mines essential. Successful applicant will be trained in West Africa to take charge of investigations there and in other parts of the world. Tours normally 12 months followed by 12 weeks' leave. Write Box 614, *The Mining Journal, Ltd.*, 15 Wilson Street, Moorgate, London, E.C.2.

ANGLO AMERICAN CORPORATION OF SOUTH AFRICA LIMITED

(Incorporated in the Union of South Africa)

GOLD MINING COMPANIES IN THE ORANGE FREE STATE

(All companies mentioned are incorporated in the Union of South Africa)

Extracts from the Statements by Mr. S. SPIRO, Chairman of the Companies,

issued with the Annual Reports for the year ended September 30, 1957

PRESIDENT BRAND GOLD MINING COMPANY LIMITED

THERE was a satisfactory improvement in operating results during the period under review. The milling rate of 59,500 tons per month in October, 1956, was increased to 70,000 tons per month by September this year, and although over this period, the recovery grade declined slightly, from 15.40 dwt. to 15.00 dwt., monthly working profits increased from £379,734 in October, 1956, to £429,432 in the final month of the financial year. There was a small decrease in working costs, which averaged 65s. 10d. per ton milled, compared with 67s. 0d. for the previous year.

The production of uranium oxide during the year increased by 29,414 lb. to a total of 211,218 lb. at an average yield of 6.277 lb. per ton. Estimated working profit improved by £82,901 to a total of £479,945 for the year.

Increased Working Profit

The total working profit from the production of both gold and uranium oxide amounted to £5,287,295. This represents an increase of £630,323 over the profit for the previous financial year.

Total dividends of 5s. per stock unit were declared during the year, compared with 3s. 6d. in 1956.

Capital expenditure amounted to £2,032,029, including £1,675,996 spent on shaft-sinking and equipment, and £168,000 on development charged to capital. Amounts expended on shaft-sinking included the company's portion of the cost of the Welkom No. 3 joint shaft system, in which our company will share the ventilation capacity, and costs incurred in respect of the company's No. 2 sub-vertical twin circular shaft system.

It is estimated that capital expenditure for the current financial year will amount to £2,150,000. Included in this amount are the estimated costs to be incurred in the programme of shaft-sinking referred to later in this review. These costs will be financed partly from profits and partly from loan facilities of £1,500,000 granted by Anglo American Corporation of South Africa.

The considerable footages driven in development during the year added 542,000 tons to the ore reserves, bringing the estimated payable reserve to 3,043,000 tons. Compared with the previous year, the estimated stope width increased by 2.21 in. to 50.36 in., and the value decreased by 0.33 dwt. to 17.63 dwt. The average uranium value of the ore reserve increased fractionally by 0.001 lb. to 0.347 lb. uranium oxide per ton.

A decline in the gold value of the ore reserves is to be expected as a result of increased development in the area of No.

2 Shaft. Additional stope faces are required in this area to build up a better balance of operations between the two shafts. Development values from No. 2 Shaft, however, have proved to be generally lower than those obtained in the relatively richer areas served by No. 1 Shaft. Payable development values from the No. 1 Shaft area during the year averaged 1,520 in. dwt., with 91.9 per cent payability, while the average payable values from the No. 2 Shaft area were 674 in. dwt., with 86.2 per cent payability. The average development values obtained in the mine during the year, taking both shaft areas into account, are similar to the average values for the previous year. It is anticipated that any decline in average values will be sufficiently gradual to ensure that the effect on revenue of a decrease in the milling grade will be more than offset by increases in the tonnage milled, and a continued rise in monthly working profits should therefore be maintained.

Good progress has been made in implementing an extensive programme to provide for higher milling tonnages. In August, sinking and equipping was completed in the No. 2 circular sub-vertical ventilation shaft, to its final depth of 2,530 ft. below the collar on 46 Level. Preliminary work has been completed and sinking is under way in the No. 2 sub-vertical hoisting shaft, which is of larger diameter than the adjacent ventilation shaft. By the end of November, sinking had been accomplished to a depth of 310 ft. below the collar on 46 Level. Completion of this sub-vertical shaft system will allow development on deeper levels to the south-east of No. 2 Shaft, at present inaccessible from the existing No. 2 Shaft system, to a bottom working elevation approximately 7,000 ft. below surface.

In view of the high rock temperatures that will prevail in these underground workings, and to improve the general ventilation conditions at No. 2 Shaft, essential for an increase of tonnage from this area, an additional 18 ft. diameter circular ventilation shaft is being sunk from the surface, adjacent to No. 2 Shaft. This will be sunk to the 46 level to connect with the sub-vertical ventilation shaft. Rapid progress was made in completing the preparatory work, to enable sinking to commence by the beginning of September. By the end of November, a depth of 1,079 ft. below the collar had been reached. It is hoped that sinking operations will be completed to coincide with completion of the No. 2 sub-vertical shaft system, towards the end of 1958. These facilities, and the underground development that will follow, should make it possible to attain a milling rate of 100,000 tons per month, which could

not be achieved under existing conditions.

Additional ventilation capacity, to permit higher stope tonnages from the area north of No. 1 Shaft, will become available when a connection is effected between the haulage on 46 level, advancing north-eastwards from No. 1 Shaft, and the Welkom No. 3 joint ventilation shaft system. Our company will share the ventilation from this shaft system with Welkom and President Steyn mines. Although progress in the 46 level haulage was delayed by having to seal off a water-bearing fissure, the haulage is now being advanced as rapidly as possible. Sinking operations in the Welkom joint shafts have proceeded very satisfactorily. The 18 ft. diameter ventilation shaft was completed and equipped by March. In the adjacent 24 ft. diameter hoisting shaft, a depth of 4,006 ft. had been reached by the end of November, including the cutting of stations at various levels and equipping the shaft. These shafts will penetrate to a depth of approximately 4,400 ft. below surface. It is anticipated that the shaft system will be complete by the second quarter of 1958, and a connection with our 46 level haulage will be made as soon as practicable thereafter.

New Shaft to be Sunk

Plans are under consideration to open up the south-eastern area of our mining property. This area is virtually isolated from the planned development from No. 2 Shaft, by the presence of the Arrarat fault. It is accordingly proposed to sink a joint shaft system, in conjunction with President Steyn, located at a suitable point to serve the south-eastern section of our mining lease area, on one side of the common boundary, and the south-western section of the President Steyn property on the other. The costs of the project will be apportioned between the two mines, on a basis still to be determined.

The new shaft system will comprise twin circular shafts to provide, in the larger diameter shaft, hoisting and downcast ventilation capacity, and in the adjacent smaller-diameter shaft, upcast ventilation. It is contemplated that the ventilation capacity will be shared between the two mines, while the use of the hoisting facilities will be apportioned according to the needs of each mine. Present indications are that our company's proportion of the capital cost of this programme will be financed from profits.

Uranium-bearing slimes from our company's reduction plant, as well as from the other active participants in the joint production scheme, have been treated throughout the year in the uranium plants on the properties of Welkom and President Steyn mines.

WESTERN HOLDINGS LIMITED

A MARKED improvement in operating results was achieved during the year. In September, 1956, 85,000 tons were milled. In May this year, a milling rate of 100,000 tons was attained for the first time, and tonnages in excess of this figure were maintained in the succeeding months.

The trend of improved values from development has continued, and is apparent in the gradual rise in the grade of ore milled, the yield having increased from 8.85 dwt. per ton in September, 1956, to 10.10 dwt. per ton in September this year.

A similar trend is evident in the enhanced value of the ore reserves, which have risen by 2.73 dwt. to an average value of 13.99 dwt. per ton. Some 857,000 tons were added to the ore reserve by an extensive development programme during the year, bringing the estimated payable reserve at September 30, 1957, to 3,930,000 tons. The estimated stope width was reduced by 0.10 in. to 45.74 in.

Working profit amounted to £3,726,924 an increase of more than 60 per cent over the profit of £2,302,445 for the previous financial period. This substantial improvement enabled the company to declare total dividends for the year of 5s. per share, compared with 3s. 6d. in 1956 and 1s. 6d. in 1955.

Capital expenditure during the year amounted to £1,502,413, including £1,491,702 on shaft-sinking, development and mine equipment. Development charged to capital amounted to £119,432.

The rate of progress achieved in exploratory development and in building up the ore reserves to the present sound position, can be judged from the total footage driven during the year. This is

equivalent to approximately 14 miles of underground tunnelling and development.

At No. 1 Shaft, development was directed principally to establishing additional stope faces to the north and west of the shaft. Payable values obtained in the area of No. 1 Shaft averaged 991 in. dwt. with 92.37 per cent payability. These satisfactory results may be expected to continue when haulages on the upper levels north of the shaft are extended, in due course, towards our common boundary with Free State Geduld, in the region of the Geduld No. 1 borehole. In view of the remoteness of the borehole from existing workings, however, it may be some time before stope connections can be established and tonnage sent to the mill from this northern extremity of the property.

The inter-shaft connections on 36, 38 and 43 levels permit a useful degree of flexibility in underground ventilation arrangements, and work is proceeding to extend operations in this area, particularly on the upper levels, where faulting has proved to be less serious than was originally expected.

Encouraging Results

Development results from No. 2 Shaft have been most encouraging, with promising reef exposures to the south and west of the shaft. Payable values of sampling in the No. 2 Shaft area for the year averaged 1,552 in. dwt., with 88 per cent payability.

The two twin cross-cuts on 43 level, heading eastwards from No. 1 Shaft and No. 2 Shaft respectively, intersected the Dagbreek fault some distance from the common boundary with Welkom mine. The evidence from the surface borehole

D.1 indicates that the reef is thrown up by this fault to an elevation of approximately 3,500 ft., and that thereafter it dips towards the Welkom boundary. It is the intention to continue the cross-cuts eastwards until reef intersections are made, when sufficient geological information will have been obtained to determine the policy to be followed in mining this eastern area.

Good progress has been made in sinking operations in the No. 3 Shaft system, to serve the western portion of the company's property. Since these operations commenced in April, 1956, sinking and station cutting were completed for the 18-ft. diameter circular ventilation shaft, to its final depth of 3,718 ft. below the collar. In March this year, the shaft-sinking crews were transferred to the adjacent 24 ft. dia. hoisting shaft, and by November 30, 3,219 ft. had been sunk. Basal Reef was intersected in this shaft at a depth of 2,945 to 2,958 ft., a complete exposure being obtained, with average values from 18 sections assaying 262.38 dwt. over 12.44 in., equivalent to 3,264 in. dwt. The uranium oxide value was 13.01 in. lb. It is anticipated that the No. 3 main shaft will be completed by the second quarter of 1958, whereupon development of the surrounding area will commence, making a limited amount of stope tonnage available in 1959.

The present capacity of the reduction plant is 125,000 tons per month. It is planned to extend the plant towards the end of 1958, to provide for the treatment of additional tonnage on completion of the No. 3 Shaft system and the subsequent development of the western area. This should ultimately place the mine in a position to mill at a rate approaching 150,000 tons per month, subject to adequate labour being available.

PRESIDENT STEYN GOLD MINING COMPANY LIMITED

MINING operations progressed favourably during the year. Production suffered a relatively serious setback in the first month of the financial year, when a fire in the underground workings at No. 2 Shaft caused a drop of 12,000 tons in the monthly milling rate, and reduced working profits by £48,138, compared with the previous month. Although the temporary loss of stope faces affected the milling rate, a steady recovery in operating results was achieved in succeeding months. Despite the introduction of surface waste sorting, eliminating approximately 10 per cent of tonnage sent to the mill, a monthly milling rate of 96,000 tons was maintained in the last four months of the financial year.

The average grade of ore milled has risen slightly, from 7.51 dwt. per ton in 1956 to 7.66 dwt. per ton for the year under review. Working costs averaged 52s. 9d. per ton milled for the year, an increase of 2s. 1d. over the comparative figure for last year. By sustaining monthly working profits at satisfactory levels throughout the year, the total annual working profit from gold increased to £2,408,411, compared with £2,293,113 for the previous financial period.

The production of uranium oxide amounted to 285,350 lb. at an average yield of 0.291 lb. per ton. Estimated working profit from this source increased

from £692,790 in the 1956 financial year to £744,200 in the year under review.

The total working profits from both gold and uranium oxide production amounted to £3,152,611, making it possible to declare total dividends for the year of 2s. 9d. per share. This compares with the previous dividend declarations of 1s. 9d. in 1956 and 6d. in 1955.

Capital expenditure during the year on shaft-sinking, development and equipment amounted to £452,589, of which £143,422 was expended on shaft-sinking.

The company reduced its loan capital by the re-purchase of 5 per cent notes to a nominal value of £219,461, at a cost of £181,055, the capital profit realized being put to "Capital Reserve". The notes outstanding at September 30, 1957, amounted to £3,840.

The ore reserves of the mine have increased by 825,000 tons to 3,927,000 tons. Compared with the previous year, the value has declined fractionally by 0.06 dwt. to 8.81 dwt. per ton, while the stope width has been reduced by 2.87 in. to 44.25 in. The estimated assay value of uranium oxide in the ore reserves, at 0.367 lb. per ton, has improved by 0.012 lb. per ton compared with the value disclosed in the ore reserves last year.

Surface waste sorting at the reduction plant, which commenced in July, will assist in improving the yield both of gold and uranium oxide recovered. It is

planned to eliminate waste amounting to approximately 10 per cent of the tonnage sent to the mill. This will restrict initially the rate at which milling tonnages can be increased, but despite this there is a reasonable prospect that the mine will be milling 100,000 tons per month in 1958. If the general limitations of the labour supply recur in 1958, it will be a satisfactory achievement if the milling rate is maintained at this figure, or slightly in excess of it, in the coming year.

Further progress was made in advancing twin cross-cuts on 27 level, heading north-west of No. 1 Shaft, to connect, in due course, with the Welkom mine No. 3 joint shaft system. The ventilation capacity of this shaft system will be shared by our company with Welkom and President Brand mines. Sinking operations in the 18 ft. diameter ventilation shaft were completed in March to its final depth of 4,362 ft., and work then commenced on the cutting of stations, ore passes, and pump and conveyor-belt chambers for the hoisting shaft. During April, sinking was commenced in the 24 ft. diameter hoisting shaft, and by the end of November a depth of 4,006 ft. had been reached. It is anticipated that the sinking and equipping of this shaft will be complete by the second quarter of 1958. Our mine will benefit from additional ventilation when the haulage on 27 level is connected with the Welkom joint shaft system, and exploratory deve-

lopment can then be undertaken in the area west of our No. 1 Shaft.

New Development Plans

Plans to open up the south-western section of our mining property are at present under consideration. This area is too remote from the ventilation facilities of No. 2 Shaft to be adequately served from that quarter. It is accordingly proposed, in conjunction with President Brand, to embark on the sinking of a joint shaft system to serve those portions of the respective lease areas lying to the

south, on either side of the common boundary. The costs will be apportioned between the two mines, on a basis still to be determined. The shaft system will follow the general pattern of the No. 3 joint shaft system at Welkom mine. It is contemplated that the ventilation capacity will be shared between the two mines, while the use of the hoisting facilities will be apportioned according to the needs of each mine. Present indications are that our company's proportion of the capital cost of this programme will be financed from profits.

The company's uranium plant has continued in operation throughout the year, treating slimes from our reduction plant and from certain of the other active participants in the joint uranium production scheme. Extensions to the uranium plants on this company's property and on the property of Welkom Mine were completed in April, to provide a rated treatment capacity, at each plant, of 150,000 tons per month. In practice, the plants have proved capable of treating tonnages somewhat in excess of their rated capacities.

FREE STATE GEDULD MINES LIMITED

OPERATING results have maintained a highly satisfactory trend during the year under review. The milling rate rose steadily from 46,000 tons per month in October, 1956, to 63,500 tons per month in September this year, and was accompanied by consistent improvements in the recovery grade, which rose by 5.16 dwt. per ton to reach 14 dwt. per ton in September. As a result of higher tonnages and grade, working profits increased from 38s. 4d. per ton milled in October, 1956, to 97s. 6d. per ton milled in September this year. The total working profits of our company for the year amounted to £2,254,060.

The substantial profits now being earned by the company made it possible to declare a maiden dividend, in September, of 1s. per share. In terms of the flotation agreement, an amount of £439,938, equivalent to the dividend, was appropriated towards reduction of the company's £1,500,000 unsecured loan.

Capital expenditure during the year amounted to £523,762, including £90,067 on shaft-sinking and equipment, and £428,000 on development charged to capital.

In consideration of the loan facilities of £5,000,000 granted to the company by Anglo American Corporation of South Africa, Limited, until December 31, 1960, the latter will receive the right, on December 31, 1957, to subscribe for 497,346 shares in the company at a price of 80s. per share. Shareholders registered on the same date, and holders of bearer warrants, will receive the right to subscribe for the remaining 703,900 reserve shares in the company, in the proportion of two new shares for every 25 shares held, at the same price of 80s. per share.

A circular dated November 15, 1957, was posted to shareholders and a notice to holders of bearer warrants was published in the Press on December 12, 1957, giving full details of the procedures to be followed in order to exercise these rights. Anglo American Corporation has undertaken to exercise its rights to subscribe for the 497,346 shares, and has underwritten the issue of the rights of shareholders and holders of bearer warrants to subscribe for the remaining 703,900 reserve shares in the company. The company is thus assured of receiving approximately £4,730,000 additional permanent capital.

In terms of the loan arrangements, the proceeds from the exercise of these rights will be applied to liquidate the balance outstanding of the loan from Anglo American Corporation.

One of the most encouraging features of development undertaken during the year has been the disclosure of good values in the area south-west of No. 1 Shaft, where haulages on the 45, 47 and

49 levels are being driven in a southerly direction to open up this section of the mine. While satisfactory progress has been made, the development of these haulages has been hampered, to some extent, in passing through a zone of complex faulting and water-bearing fissures.

In addition to driving these haulages through the fault zone to the south-west of No. 1 Shaft, development was also undertaken north and west of the shaft. These latter areas are relatively free of faulting and water, but the reef values disclosed have not been as high as those to the south of the shaft.

Development results from the No. 1 Shaft area as a whole averaged 823 in. dwt. for the year, compared with 551 in. dwt. and 485 in. dwt. for the previous two years. Further development is proceeding in the promising area to the south and south-west of the shaft.

The average values from development accomplished in the area of No. 2 Shaft during the year were 1,720 in. dwt., a satisfactory improvement on the average of 1,552 in. dwt. for the 1956 financial year.

A better balance in mining operations between No. 1 Shaft and No. 2 Shaft has been brought about by intensive development at No. 2 Shaft during the year, thus providing additional stope faces and increasing the proportion of tonnage drawn from this area. Five working levels have been established to the south of the major east-west fault zone by the penetration of this zone with haulages on the 43, 45, 47, 49 and 51 horizons. Greater tonnages reaching the mill from this area of relatively higher values have contributed materially to the impressive rise in the gold-recovery grade over the past twelve months. It is proposed to develop these levels as rapidly as possible during the coming year in the direction of the southern boundary of the property.

Geduld No. 1 Borehole Area

In view of the considerable public interest in the area surrounding the Geduld No. 1 borehole, I would like to refer to the reasons why immediate development of this area has not been practicable. The reef was intersected in the borehole at a depth of 3,900 ft., considerably higher than the existing workings on the 43 and 45 levels. A development end towards the borehole would serve no useful purpose in providing stope tonnage, in view of its remoteness from the shaft and the present difficulty of providing sufficient ventilation for mining. However, development up-dip is proceeding from 43 level towards the area of the borehole: a 41 level is in the course of being established, and further development from 41 level up to the borehole elevation will then be possible. In addition,

it is intended during the coming year to cross-cut from No. 2 Shaft on 39 level towards the west, with the object of providing a main return airway and haulage to the workings above 43 level, at present the top working level at this shaft. The cross-cut will ultimately be developed towards the Geduld No. 1 borehole. However, in view of the considerable work involved, that it may be some time before this development reaches the immediate vicinity of the borehole and before stope connections can be established.

The active development programme undertaken during the year has added 635,000 tons to the ore reserves, bringing the estimated payable reserve at September 30, 1957, to 1,899,000 tons. The grade of the ore reserves, at 18.74 dwt., is 2.59 dwt. higher than the grade of the ore reserve last year, reflecting the influence of improved values obtained in development. The estimated stope width has increased slightly, by 0.35 in. to 46.95 in.

Although ventilation conditions are being improved by the installation of underground refrigeration plants to serve certain sections of the mine, the relatively high temperatures and humid conditions prevailing in the deeper levels at No. 2 Shaft will necessitate the sinking of a new ventilation shaft from the surface. This will facilitate the attainment of an increased milling rate. It is therefore proposed to commence the sinking, probably during the second half of 1958, of a circular upcast ventilation shaft, 18 ft. in diameter, penetrating to a depth equivalent to the lowest planned working level of the mine. The new ventilation shaft has been tentatively sited in a position approximately 800 ft. westward of No. 2 Shaft.

The company's No. 3 Shaft, acquired from Freddie's Consolidated Mines, has been put on a caretaking basis, but use is being made of the shaft to assist the ventilation of the stopes north of No. 1 Shaft.

The milling capacity of the reduction plant is 125,000 tons per month. Work will be put in hand during the coming year to increase the capacity of the treatment section of the plant from 100,000 tons per month to 125,000 tons per month.

The supply of labour was reasonably adequate during the year, although production in recent months has been affected by the usual seasonal decline in the non-European labour force. The position is expected to improve in the early months of 1958.

The results obtained from the experimental pilot plant for desalting underground mine water, operated in Welkom by the Council for Scientific and Indus-

trial Research in co-operation with mining companies in the Orange Free State, have been sufficiently encouraging to warrant further experiments on the purification of mine water on a far larger scale. Work has recently commenced on

the construction of a plant, on our company's property, designed to treat 3,000,000 gallons of water a day, which would supply most of the fresh-water requirements of our company and Western Holdings mine, as well as a propor-

tion of the water required for the Welkom mine uranium plant. Seven other mines in the Orange Free State are participating, with our company, in the capital and operating costs of this experimental plant.

WELKOM GOLD MINING COMPANY LIMITED

ALTHOUGH production suffered a temporary setback in October, 1956, the first month of the financial period due to an underground fire in the workings at No. 1 Shaft, milling was maintained at a satisfactory rate during the year.

The stoping width has been reduced, by 2.37 inches to 47.29 inches, and this, together with the introduction of surface waste sorting at the reduction plant towards the end of the financial year, has had a beneficial effect on the yield of both gold and uranium. The recovery grade of gold improved to 5.90 dwt per ton in September this year, compared with 4.93 dwt in September, 1956, while an improvement has also been brought about in the uranium grade of residue slimes. The effect of surface waste sorting is also noticeable in the lower tonnage milled during the latter months of the period under review. The seasonal decline in the non-European labour force has also contributed to this lower milling rate, but the supply of non-European labour is expected to improve, when the customary influx of workers takes place in the early months of the new year.

Working profits from gold production, which averaged 8s. 4d. per ton milled for the previous financial year, were increased to an average of 12s. 6d. per ton milled in the period under review. Total working profits from gold amounted to £641,721, an improvement of £217,457 compared with the previous financial year.

A substantial contribution to the company's revenue has been made by the production of uranium oxide. The improved uranium values of residue slimes enabled treatment to commence in May, in terms of the joint uranium production scheme. Profits from this source mounted steadily. By the end of the financial year, the company's apportionment of uranium oxide for the five months of production amounted to 100,147 lb., at an average yield of 0.269 lb. per ton, with estimated working profits totalling £317,844.

The total working profit from the production of both gold and uranium amounted to £959,565—an increase of £469,114 over the total working profit for the previous financial year.

As a consequence of better operating results, it was possible to declare a maiden dividend in September, of 3d. per share. In addition, an amount of £153,125, equivalent to the amount declared as

dividend, was appropriated towards redemption of the company's 5 per cent. debentures, in accordance with the conditions of the debenture issue. It will be appreciated, however, that the projected capital expenditure and loan commitments of the company must of necessity, at present, limit the amounts which can be made available for distribution to shareholders.

Capital expenditure during the year totalled £1,399,335, including £892,678 in respect of shaft-sinking, development and equipment, and £501,742 in respect of the uranium project. Contributions towards the amortization of the uranium project, received from the four other active participants in the joint production scheme, amounted to £374,903. No excess development was charged to capital.

Estimated capital expenditure for the current financial year on shaft sinking, development and equipment will amount to £1,150,000.

Improved Uranium Values

Development accomplished during the year increased the ore reserves of the mine by 121,000 tons, to 3,471,000 tons, of an average value of 6.52 dwt. Compared with the ore reserve last year, the value increased by 0.22 dwt., while the estimated stope width was reduced by 1.88 inches to 46.31 inches. The estimated assay value of uranium oxide in the ore reserves, at 0.315 lb. per ton, has improved by 0.042 lb. per ton.

Good progress has been made in the task of deepening No. 1 Shaft. This work is being undertaken to permit the establishment of workings on six levels below the original depth of the shaft, to a bottom working level of 4,500 feet. By the end of November, the shaft had been deepened to 4,214 feet below surface, and stations were cut at 40 and 42 levels. Preparatory work is in progress to enable similar deepening operations to be commenced in No. 2 Shaft during the coming year.

Sinking of the 18 ft. diameter No. 3 joint ventilation shaft was completed, during May, to its final depth of 4,362 feet. This work, including the cutting of stations and equipping the shaft, was accomplished within a period of seventeen months, which may be regarded as a satisfactory achievement, under the conditions encountered. Basal Reef was intersected in the shaft at a depth of 4,174 feet, a complete exposure being obtained, with average values from 11 sections

assaying 28.5 dwt. over 11 inches, equivalent to 314 inch-dwt. The uranium oxide value over the same number of sections was 0.735 lb. per ton over 11 inches, equivalent to 8.085 inch-lb.

Sinking operations are well advanced in the 24 ft. diameter No. 3 hoisting shaft, adjacent to the joint ventilation shaft. By the end of November, a depth of 4,006 feet below the collar had been reached. It is anticipated that the No. 3 shaft system will be completed by the second half of the current financial year, after which it will be possible to commence development from the shafts, in the south-western area of our mining property. Connections will be made with underground haulages from President Brand and President Steyn, in accordance with the arrangement whereby the ventilation capacity is to be shared with those companies.

Development from No. 3 Shaft during 1958 should permit a limited stope tonnage to be drawn from that area during the following year, enabling higher tonnages to be milled.

During the year the volume of water, from fissures and the hanging wall in the upper levels of the mine, has greatly diminished. At the same time, methane gas has been found to be present in increased quantities, making it necessary to augment ventilation in the upper levels. It is accordingly intended to proceed, as soon as possible, with the sinking of a 12 ft. diameter vertical winze from the surface, to connect with the most westerly workings at No. 1 Shaft. The vertical winze will be sunk to a depth of approximately 1,500 feet, and will be used for upcast ventilation. At a later date, it is anticipated that a similar winze will be sunk from the surface to connect with underground workings due west of No. 2 Shaft.

Our company's uranium plant has continued in operation throughout the year, treating slimes from our reduction plant as well as slimes pumped from the properties of the other active participants in the joint uranium production scheme. Extensions to the uranium plants on this company's property and on the property of President Steyn were completed in April, to provide a rated treatment capacity, at each plant, of 150,000 tons per month. In practice, the plants have proved capable of treating tonnages somewhat in excess of their rated capacities.

LORAINÉ GOLD MINES LIMITED

IN October, 1956, 59,000 tons were milled at a grade of 3.79 dwt per ton, the working loss from gold production for the month being £8,558. By September, 1957, the final month of the financial year, the milling rate had improved to 65,500 tons, at a grade of 3.97 dwt, while the monthly working loss had been reduced to £5,410, average working costs of 52s. 11d. per ton milled for the previous year, were reduced to 50s. 10d. per ton milled for the period under review.

Since the termination of the financial year, however, the seasonal decline in the non-European labour force has adversely affected the milling rate, with consequent increases in the monthly working losses incurred.

The accumulated working loss from gold production for the year under review amounted to £66,193, compared with £252,865 for the previous financial year.

The uranium plant on the property of

Welkom mine has treated, since November, 1956, uranium bearing slimes pumped from our company's reduction plant, in addition to treating slimes from the other active participants in the joint uranium production scheme. Our company's apportionment of uranium oxide produced amounted to 143,575 lb. at an average yield of .235 lb. per ton, with estimated working profits totalling £319,947. These estimated working profits have offset working losses from gold production so that, for the first time, the

company has made an overall working profit for the year, amounting to £253,754.

It must be appreciated, however, that this working profit is not sufficient to offset capital expenditure and other commitments. Capital expenditure for the year amounted to £536,143 net of which £404,000 was incurred on development charged to capital account. This capital expenditure on development, while not contributing to an increase in the ore reserves, was essential in order to carry out an extensive programme of underground prospecting and exploration. Interest payable on the six per cent. notes amounted to £32,798.

The income and expenditure account reflects a net profit for the year of £221,473. After providing for an increase of £2,338 in the company's terminal liability under the Silicosis Act, 1946, the balance of £219,135 has been set off against the loss of £525,665 brought forward from 1956, leaving a loss of £306,530 to be carried forward.

The company's operations are being financed out of loan facilities from Anglo American Corporation of South Africa of £2,750,000, repayable by December 31, 1962, plus additional temporary facilities of £1,850,000 granted to the company until June 30, 1958. All drawings against the total facilities of £4,600,000 are interest free until June 30, 1958, when the position will be reviewed. The amount drawn against these facilities at November 30, 1957, was £4,024,806.

The semi-resue method of stoping on the Basal Reef has been continued, wherever possible, with a consequent reduction in the quantity of waste hoisted. This method has greatly assisted in reducing the stoping width, which would be excessive, if normal stoping methods were employed. Increasing proportions of tonnage have been mined on the "B" Reef, and although this reef does not lend itself to the semi-resue method of stoping, every effort has been made to maintain a minimum stoping width. In addition, more than 20 per cent. of the tonnage sent to the mill was eliminated as waste, by surface sorting. These techniques have made it possible to maintain a milling width for the mine of approximately 37 inches, a highly commendable achievement.

Intensive Development Programme

An intensive programme of underground development and exploration was followed during the year, the footages driven being maintained at a rate of approximately 7,000 feet per month. Although a greater total footage was sampled than in the previous 12 month period, the payable footage decreased, the ore reserves of the mine, at September 30, 1957, were consequently 58,300 tons lower than the previous year. The ore reserves now comprise 1,043,500 tons, of an average gold value of 4.21 dwt over a stope width of 44.48 inches. The gold value has increased by 0.02 dwt, compared with last year, while the estimated stope width is fractionally higher, by 0.07 inches. The uranium oxide value of the ore reserve, at .208 lb. per ton, is 0.007 lb. lower than last year.

Basal Reef development was concentrated on exploration of the area west of the shafts, where surface boreholes TD.1 and K.2 had indicated the possibility of better results in the deeper levels. The average values obtained in the area of borehole TD.1 were, however disappointing and below the value disclosed in the borehole. Further development remains to be accomplished in the area of borehole K.2, and to prospect the reef at greater depth, west of No. 1 Shaft. However, unless there is a marked improvement in percentage payability it is unlikely that there will be any substantial additions of Basal Reef to the ore reserves.

The major portion of development during the year was undertaken on the "B" Reef horizon. This reef is characterized by highly erratic values. The average values are generally higher than those of the Basal Reef, but the payable occurrences are sporadic, and do not persist over any great distance. Considerable footages on "B" Reef were developed and sampled at No. 2 Shaft during the year; it has not proved possible, however, owing to the disposition of the gold in the reef, to define or demarcate pay shoots or zones of payable values with any accuracy. Stopping operations on "B" Reef are carefully watched as a consequence, and the reef sampled frequently, but to maintain reasonable stoping conditions, a certain percentage of unpayable ground has to be mined. Although the uranium oxide values

originally disclosed in "B" Reef development were not encouraging, there has been an improvement during the year. Development is continuing in those areas which appear to show the greatest promise.

Twin crosscuts on 48 level, advancing in a south-westerly direction from No. 2 Shaft, intersected a reef of the so-called Rainbow Reef series, in a close proximity to surface borehole K.1 on the western boundary of our mining lease area. Of the development accomplished on the Rainbow Reef in this area of the mine, 1,215 feet were sampled, 58.44 per cent. proving payable, at an average value of 327 inch-dwt. The twin crosscuts on 48 level have been turned south, across the southern boundary of our property, and are now being continued into the lease area of Riebeeck Gold Mining Company, Limited, at the expense of that company. Although the results so far obtained by our company on the Rainbow Reef have generally been encouraging, the area of these reef bands lying within our mining property is very limited in extent, and cannot constitute a major source of ore.

Looking to the future, the general trend of values disclosed in development during the past year, coupled with the ore reserve figures, does not indicate that it will be possible to bring about any immediate increase in the grade in either gold or uranium production, nor would the fairly heavy expenditure involved in expanding the plant and intensifying development still further with a view to increasing production be warranted under present circumstances. Unfortunately, the overall working profit from gold and uranium combined, has hitherto proved too small to cover the capital expenditure, including expenditure on exploratory operations, which has had to be incurred at the mine and as a result, the funds available to the company through borrowings have been reduced steadily. While there is justification for continuing operations on the present scale for the time being, in the hope that better development values will be obtained, it is not possible to lay down any long-term policy in regard to future mining operations.

At present, there is a general shortage of non-European workers, due to the seasonal decline in the labour supply, but it is hoped that this position will improve in the early months of 1958.

Copies of the Reports and Accounts of the above-mentioned companies may be obtained from the London Secretaries of the Companies — Anglo American Corporation of South Africa Limited, 40 Holborn Viaduct, E.C.1.

HADFIELD 42 in. x 30 in. with Ross Feeder and all electrics; all new 1946. 36 in. x 24 in. Hadfield; unused; approx. £1,000 below list. 30 in. x 18 in. Broadbent with 60-h.p. motor. 48 in. Nordberg Standard Cone with 120-h.p. motor. 36 in. Nordberg Standard Cone with 60-h.p. motor, with four sets mantles and concaves; used three months; approx. £1,500 below list. 24 in. Nordberg and Pegson Cones; also Pegson 8B, both new 1951, used under three years. Parker No. 3 Kubit, as new, £950. Three 250-ton Blaw

Knox Circular Bins, centre clam-shell door. Lorry height. Steelwork for 300-ton five-section Bin designed for timber divisions and enclosure. Both above dismantled and ready for loading. Marsden 32 ft. x 5 ft. Rotary Screen, 4 in., 2 in. and 1½ in., with 25-h.p. motor. Niagara TR7, 5 ft. x 2 ft. 6 in., 3 deck, with 10-h.p. motor. £1,000 the pair. Sherwen 10 ft. x 4 ft. Magnetic Screen; used one test only; list approx. £900, accept £450. SAVILLE-CALVERT (MACHINERY) LTD., Harvester House, Stratford-on-Avon. Tel. 3681.

METALLIFEROUS MINING SCHOLARSHIPS

Two awards of £300 and three of £150 p.a. from October, 1958 (provided by Metalliferous Mining Companies) for three years' Metalliferous Mining Course at Royal School of Mines, or Degree and A.R.S.M. Application forms from Registrar, Imperial College, London, S.W.7, to be returned by March 31, 1958.

JOHN SUMMERS & SONS IMPROVED RESULTS

The annual general meeting of John Summers and Sons, Ltd., will be held on February 5 in London.

The following is an extract from the statement by the chairman, **Mr. Richard F. Summers**, circulated with the report and accounts for the 52 weeks ended September 28, 1957:

I would like to refer to the somewhat better results which we have been able to achieve in spite of the fact that in the early part of the Company's financial year there was a very decided falling off in the demand for our steel in the home market. This was due in large measure to the tightening up by the Government of credit arrangements, and the restriction on the importation of motor cars into some of the Dominions. Thanks to the energy of our Sales organization, and to the fact that we were able to obtain from the Board of Trade greater freedom in the export licensing arrangements we were able to avoid any short time working. Our long established practice of selling our products in as wide a field as possible also contributed to our ability to keep our works fully employed.

Dividend

I feel sure that shareholders will be pleased at the recommended increase in dividend. In arriving at our decision we had a number of factors to consider, not the least of which was the large amount of capital expenditure to which we are committed, but, as I have said in the past, we are not unmindful of the very natural desire of our shareholders to participate in the increased efficiency and prosperity of the undertaking, and we felt that notwithstanding what has still to be done sufficient progress has been made to justify us in recommending this increase; at the same time we deemed it prudent to retain in the business for future developments a very considerable sum comparable to that put aside in the previous year.

Pension Schemes

The Board have now introduced a scheme which will come into operation on April 1 next. Basically it is a non-contributory Pension and Life Assurance scheme, but it contains provisions to enable those who wish, by making personal contributions, to acquire either a higher pension or lump sum on retirement or prior death, or a combination of the two. Whilst the cost of this scheme will be substantial, the Board feel that it will further enhance the very cordial relations which exist between the Management and the men employed in the Group.

Nationalization

The success of the British steel industry, both at home and in overseas markets, has been largely due to the initiative and foresight of those who have built it up under private enterprise. They have been free from bureaucratic control, and in a position to make quick decisions when necessary. There are many arguments that could be put forward against the re-nationalization of the steel industry, but they have been quoted so often that it might be wearisome if I were to repeat them here. However, in my opinion, those who say that it is so important that it must be controlled, have their answer in the fact that this is already being done through the medium of the Iron and Steel Board, who have sufficient powers under their constitution to see that everything is done in the best interests of the nation.

BUFFELSFONTEIN GOLD MINING COMPANY LIMITED

(Incorporated in the Union of South Africa)

Mr. Jack Scott, Chairman of the Company, presided at the Eighth Annual General Meeting of Shareholders held at 80 Marshall Street, Johannesburg, on Wednesday, December 18, 1957, and addressed the Meeting as follows:—

The Directors' Report and Accounts for the year ended June 30, 1957, are before you, and before moving their adoption I have a few remarks to make on the affairs of the Company.

The twelve months under review saw the commencement of the production of gold on January 1, 1957, and of uranium six months later on July 1. The acid and pyrite plants started up in September, so that all the major installations of the Company are producing at full capacity.

In regard to the production of gold, the outstanding feature was the rapid build up of tonnage to the full capacity of the mill within 4 months of the commencement of milling and this high rate has been maintained and in fact improved upon.

Over the past 5 months of the current year, the milling rate has averaged more than 110,000 tons a month.

The good progress made during the current half year has made possible the maiden dividend declaration of 1/6d. per share recently announced.

During the first year of underground development and in spite of the high milling rate, it was possible to build up an ore reserve of 1,157,000 tons, with an average value of 7.45 dwts over a stoping width of 59.5 inches, equivalent to 443 inch dwts and uranium values of 0.579 lbs. per ton, equivalent to 34.46 inch lbs.

During the past 5 months of this year, 39,655 feet of development were completed. 11,190 feet were sampled, of which 10,770 feet or 96.2% were payable, averaging 580 inch dwts and 32.5 inch lbs. over a channel width of 38.7 inches, as compared with a channel width of 42.9 inches for the previous year.

The Directors' Report mentions the decision taken to increase the capacities of the gold, uranium, acid and pyrites plants, which should be completed during the latter half of 1958. This will necessitate a corresponding increase in hoisting capacity and for this purpose the Ventilation Shaft will be re-equipped with a 5,000 h.p. winder to handle the additional tonnage. There will also be additional expenditure on housing and general services.

The expansions will be financed to the extent of £500,000 by passing a mortgage bond on the security of the European housing, and the balance by appropriations from profits.

Arrangements have been made for such short term borrowings as may be necessary from time to time, which arrangements, coupled with the extended repayment terms of the Anglo American loan, will even out the rate of appropriations from profits and permit of the maintenance of suitable dividends.

The uranium plant was formally opened on October 8 by their Excellencies the High Commissioner for the United Kingdom and the Ambassador for the United States. The date chosen was the 5th anniversary of the opening at West Rand Consolidated of the first plant to produce uranium under the 10 year programme. During the intervening 5 years, Great Britain and the United States have financed the erection of 17 uranium plants, by

way of loans totalling about seventy million pounds. As Buffelsfontein will be the last Company to be admitted to the uranium programme, we treated the ceremonial opening as an opportunity of paying a tribute to these two countries for the part they have played in the establishment and development of an industry which is playing such a great part, not only in the affairs of the Company, but also the economic structure of the Union.

Before closing I feel that I should place on record the Board's appreciation of the outstanding contribution by all concerned to the success achieved by the mine, in the short time since the commencement of shaft sinking in September, 1953. In particular I must mention **Mr. B. M. Roberts** and his staff, as well as **Mr. J. A. Nixon** and **Mr. A. Comyn**, Manager and Assistant Manager of the mine until last year, and also **Mr. Frank Nott** who took over as Manager on Mr. Nixon's transfer to Head Office. To these gentlemen and those who worked with them, I tender the thanks and appreciation of the Directors.

JOS TIN AREA (NIGERIA), LIMITED

The Annual General Meeting of Jos Tin Area (Nigeria), Limited, was held in London on January 15, **Mr. A. B. D. Fox, A.R.C.S.**, the Chairman, presided.

The following is an extract from his circulated statement:—

The results for the year to July 31, 1957, are satisfactory making allowance for the circumstances with which we had to contend.

The fall in the price of tin has been moderate in comparison with other metals and commodities owing to the existence of the Buffer Stock administered by the International Tin Council. We have made an initial contribution to the Buffer Stock and must be prepared to put up further instalments.

The immediate outlook for tin is not encouraging and the industry may have to face a difficult period before the world consumption is in line with production. The probability of the restriction of exports under the terms of the International Tin Agreement has also to be visualized.

At July 31 our quoted investments stood at £293,166 with a market value at that date of £561,193, an appreciation of 91.42%. Since that date the general decline in stock markets, set off by a situation necessitating a 7% bank rate, has resulted in a fall of nearly 20% in the market value of our holdings.

The gross income has increased by some £1,350 over the previous year, showing a return of just on 6% based on market price.

It is proposed, subject to the members' approval, to issue a free share bonus, out of past undistributed profits, of one share for every ten stock units held.

Addressing the meeting the Chairman said: In order to deal with the excess of production of tin over consumption the International Tin Council instituted restriction as from December 15, 1957. In the case of this Company we are only permitted to ship 30½ tons of ore in the current quarter, this is a cut of approximately 35% on our average production for the previous 12 months to the end of November.

In addition, however, we can expect to make part of the final contribution to the Buffer Stock in metal without affecting our quota.

The report and accounts were adopted and the proposed free scrip issue approved.

THE NEW PIONEER CENTRAL RAND GOLD MINING COMPANY LIMITED

(Incorporated in the Union of South Africa)

In the absence of Mr. Jack Scott, Chairman of the Company, **Mr. C. W. Roper** presided at the 34th Annual General Meeting of the Company, held at 80 Marshall Street, Johannesburg, on Tuesday, December 31, 1957, and addressed the meeting as follows:

At the last Annual General Meeting, the Chairman of the Company reviewed in detail the progress made by the Company during the period of the development of the Lucas Block and the Reports and Accounts which are before you show that the Company is now receiving the benefits resulting from its early pioneering of the area.

Although a small number of shares had to be realized last year, the Company's shareholdings in the Stilfontein, Hartebeestfontein, and Buffelsfontein mining companies are substantial, and at present market prices represent more than 90 per cent of the Company's share portfolio. The market value of these and other quoted securities has increased since the date of the balance sheet, and at the close of business yesterday stood at £3,134,192.

One of the main features of the Company's affairs during the past year was the considerable increase in income from dividends, the total being £110,247, as compared with £49,431 in the previous year. This trend may be expected to continue in the current year.

Stilfontein having disposed of its short-term loan commitments, and notwithstanding a heavy capital programme, has greatly increased its most recent declaration. Results from Hartebeestfontein continue to be impressive, and notwithstanding the cost of expanding its mining operations, its dividends have again been increased. The rapid build-up and maintenance of the milling rate at Buffelsfontein justified a maiden dividend of 1s. 6d. per share after only 12 months of production, and shareholders were informed at the recent Annual General Meeting that although a heavy capital expenditure programme lay ahead, suitable dividends would be maintained.

Turning to the income from rentals and freehold revenue, here also there was a substantial increase from £17,806 to nearly £40,000 during last year. While the income from the freehold revenue will drop during this year, mainly as a result of the sale of the surface rights in the Stilfontein lease area, and the consequent loss of the owner's share of claim licence moneys, the rent roll itself will continue to grow. The enterprise of your Company in retaining and developing the business stands in Stilfontein Township is now bearing fruit, and we can look forward to a stable and increasing income from this source.

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Since the close of the year, the first completed unit of shops, offices and flats in the Civic Centre has been finished, and during this year it is intended to build one more native trading store, two more garages, and a small block of sub-

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The net profit for the year, after providing for tax, was £197,888, which with the carry-forward from 1956 of £126,181, left available for appropriation a total of £324,069. When dealing with this balance, the Board felt it necessary to take into consideration two important factors.

The first of these was the substantial indebtedness of the Company which has been built up over the past years by reason of its expenditure on property development and on exercising the rights to take up shares in the Lucas Block companies. To the extent of £250,000, these liabilities have been placed on a long-term basis through the debenture issue reflected in the accounts, but there remains a considerable balance of short-term indebtedness for the repayment of which provision must be made.

The second factor was that the income for the year contained certain non-recurring items, such as the realization of some of the investments and the sale of the surface rights of the Stilfontein mining lease area to which I have referred before.

These circumstances stressed the necessity for retaining within the Company a substantial portion of the available profits, and this has been done by appro-

priating an amount of £104,875, which has been transferred to General Reserve, thus raising that account to a total of £800,000.

This substantial appropriation to reserves left the way clear for the declaration of what, for the present purposes of the Company, is its maiden dividend of 1s. per share. This dividend has been designated Dividend No. 1, although there were earlier distributions many years ago at a time when the business of the Company was of a completely different nature.

A further improvement in the short-term liability position will arise from the expected recoupment of expenditure on Township services about to be purchased by the Stilfontein Health Committee. This, together with the expected increasing trend in revenue from dividends and rentals to which I have already referred, should leave the way clear for a progressive improvement in dividend distributions.

In conclusion, it might be of interest to compare the position of this Company ten years ago with its present condition. In June, 1948, the net assets were valued at £300,000, while the reserves were approximately £98,000. Notwithstanding the fact that the Company has since then passed on to its shareholders the rights to subscribe for more than 4,500,000 Stilfontein shares, 1,250,000 Hartebeestfontein shares, and 1,500,000 Buffelsfontein shares, it has built up its net assets to a present market value (including immovable property at cost) of approximately £3,500,000 and its reserves and undistributed profits to a total of £922,497.

This concludes my address on the affairs of the Company.

GENERAL MANAGER

is required by the

NIGERIAN COAL CORPORATION

for 3 tours each of 18-24 months. Consolidated salary according to qualifications and experience in the range £3,000 to £3,500 a year. The officer will be required to join the Staff Provident Fund to which he will contribute 3 per cent of his salary and the Corporation 22 per cent. Outfit allowance, £60. Furnished modern house available at £150 a year rent. Free passages for officer and wife. Assistance towards cost of children's passages and grant of up to £150 annually for maintenance in U.K. Liberal leave on full salary. The General Manager will be required to take control of the Corporation's activities and will be directly responsible to the Chairman. Candidates should be highly qualified Mining Engineers with considerable administrative experience. Write to the Crown Agents, 4 Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M3B/44498/MF.

Inco's Manitoba Project.—On October 20 last, a 30-mile railway spur providing year-round transport for men and materials was completed on International Nickel's new Thompson-Moak Lake project. The spur links the project's plant site at Thompson with the C.N.R.'s Hudson Bay line.

JOHN SUMMERS & SONS IMPROVED RESULTS

The annual general meeting of John Summers and Sons, Ltd., will be held on February 5 in London.

The following is an extract from the statement by the chairman, **Mr. Richard F. Summers**, circulated with the report and accounts for the 52 weeks ended September 28, 1957:

I would like to refer to the somewhat better results which we have been able to achieve in spite of the fact that in the early part of the Company's financial year there was a very decided falling off in the demand for our steel in the home market. This was due in large measure to the tightening up by the Government of credit arrangements, and the restriction on the importation of motor cars into some of the Dominions. Thanks to the energy of our Sales organization, and to the fact that we were able to obtain from the Board of Trade greater freedom in the export licensing arrangements we were able to avoid any short time working. Our long established practice of selling our products in as wide a field as possible also contributed to our ability to keep our works fully employed.

Dividend

I feel sure that shareholders will be pleased at the recommended increase in dividend. In arriving at our decision we had a number of factors to consider, not the least of which was the large amount of capital expenditure to which we are committed, but, as I have said in the past, we are not unmindful of the very natural desire of our shareholders to participate in the increased efficiency and prosperity of the undertaking, and we felt that notwithstanding what has still to be done sufficient progress has been made to justify us in recommending this increase; at the same time we deemed it prudent to retain in the business for future developments a very considerable sum comparable to that put aside in the previous year.

Pension Schemes

The Board have now introduced a scheme which will come into operation on April 1 next. Basically it is a non-contributory Pension and Life Assurance scheme, but it contains provisions to enable those who wish, by making personal contributions, to acquire either a higher pension or lump sum on retirement or prior death, or a combination of the two. Whilst the cost of this scheme will be substantial, the Board feel that it will further enhance the very cordial relations which exist between the Management and the men employed in the Group.

Nationalization

The success of the British steel industry, both at home and in overseas markets, has been largely due to the initiative and foresight of those who have built it up under private enterprise. They have been free from bureaucratic control, and in a position to make quick decisions when necessary. There are many arguments that could be put forward against the re-nationalization of the steel industry, but they have been quoted so often that it might be wearisome if I were to repeat them here. However, in my opinion, those who say that it is so important that it must be controlled, have their answer in the fact that this is already being done through the medium of the Iron and Steel Board, who have sufficient powers under their constitution to see that everything is done in the best interests of the nation.

BUFFELSFONTEIN GOLD MINING COMPANY LIMITED

(Incorporated in the Union of South Africa)

Mr. Jack Scott, Chairman of the Company, presided at the Eighth Annual General Meeting of Shareholders held at 80 Marshall Street, Johannesburg, on Wednesday, December 18, 1957, and addressed the Meeting as follows:—

The Directors' Report and Accounts for the year ended June 30, 1957, are before you, and before moving their adoption I have a few remarks to make on the affairs of the Company.

The twelve months under review saw the commencement of the production of gold on January 1, 1957, and of uranium six months later on July 1. The acid and pyrite plants started up in September, so that all the major installations of the Company are producing at full capacity.

In regard to the production of gold, the outstanding feature was the rapid build up of tonnage to the full capacity of the mill within 4 months of the commencement of milling and this high rate has been maintained and in fact improved upon.

Over the past 5 months of the current year, the milling rate has averaged more than 110,000 tons a month.

The good progress made during the current half year has made possible the maiden dividend declaration of 1/6d. per share recently announced.

During the first year of underground development and in spite of the high milling rate, it was possible to build up an ore reserve of 1,157,000 tons, with an average value of 7.45 dwts over a stoping width of 59.5 inches, equivalent to 443 inch dwts and uranium values of 0.579 lbs. per ton, equivalent to 34.46 inch lbs.

During the past 5 months of this year, 39,655 feet of development were completed. 11,190 feet were sampled, of which 10,770 feet or 96.2% were payable, averaging 580 inch dwts and 32.5 inch lbs. over a channel width of 38.7 inches, as compared with a channel width of 42.9 inches for the previous year.

The Directors' Report mentions the decision taken to increase the capacities of the gold, uranium, acid and pyrites plants, which should be completed during the latter half of 1958. This will necessitate a corresponding increase in hoisting capacity and for this purpose the Ventilation Shaft will be re-equipped with a 5,000 h.p. winder to handle the additional tonnage. There will also be additional expenditure on housing and general services.

The expansions will be financed to the extent of £500,000 by passing a mortgage bond on the security of the European housing, and the balance by appropriations from profits.

Arrangements have been made for such short term borrowings as may be necessary from time to time, which arrangements, coupled with the extended repayment terms of the Anglo American loan, will even out the rate of appropriations from profits and permit of the maintenance of suitable dividends.

The uranium plant was formally opened on October 8 by their Excellencies the High Commissioner for the United Kingdom and the Ambassador for the United States. The date chosen was the 5th anniversary of the opening at West Rand Consolidated of the first plant to produce uranium under the 10 year programme. During the intervening 5 years, Great Britain and the United States have financed the erection of 17 uranium plants, by

way of loans totalling about seventy million pounds. As Buffelsfontein will be the last Company to be admitted to the uranium programme, we treated the ceremonial opening as an opportunity of paying a tribute to these two countries for the part they have played in the establishment and development of an industry which is playing such a great part, not only in the affairs of the Company, but also the economic structure of the Union.

Before closing I feel that I should place on record the Board's appreciation of the outstanding contribution by all concerned to the success achieved by the mine, in the short time since the commencement of shaft sinking in September, 1953. In particular I must mention **Mr. B. M. Roberts** and his staff, as well as **Mr. J. A. Nixon** and **Mr. A. Comyn**, Manager and Assistant Manager of the mine until last year, and also **Mr. Frank Nott** who took over as Manager on **Mr. Nixon's** transfer to Head Office. To these gentlemen and those who worked with them, I tender the thanks and appreciation of the Directors.

JOS TIN AREA (NIGERIA), LIMITED

The Annual General Meeting of Jos Tin Area (Nigeria), Limited, was held in London on January 15. **Mr. A. B. D. Fox, A.R.C.S.**, the Chairman, presided.

The following is an extract from his circulated statement:—

The results for the year to July 31, 1957, are satisfactory making allowance for the circumstances with which we had to contend.

The fall in the price of tin has been moderate in comparison with other metals and commodities owing to the existence of the Buffer Stock administered by the International Tin Council. We have made an initial contribution to the Buffer Stock and must be prepared to put up further instalments.

The immediate outlook for tin is not encouraging and the industry may have to face a difficult period before the world consumption is in line with production. The probability of the restriction of exports under the terms of the International Tin Agreement has also to be visualized.

At July 31 our quoted investments stood at £293,166 with a market value at that date of £561,193, an appreciation of 91.42%. Since that date the general decline in stock markets, set off by a situation necessitating a 7% bank rate, has resulted in a fall of nearly 20% in the market value of our holdings.

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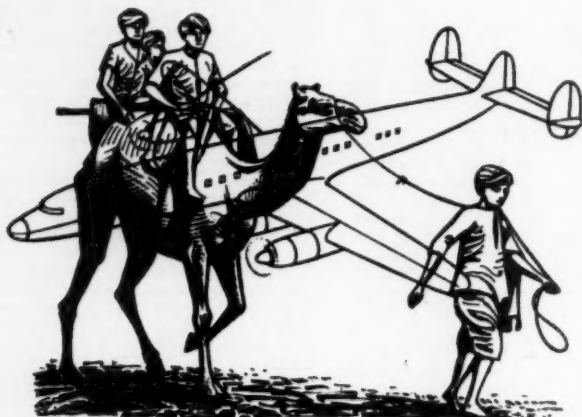
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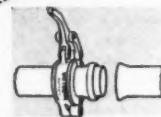
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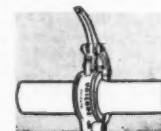
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